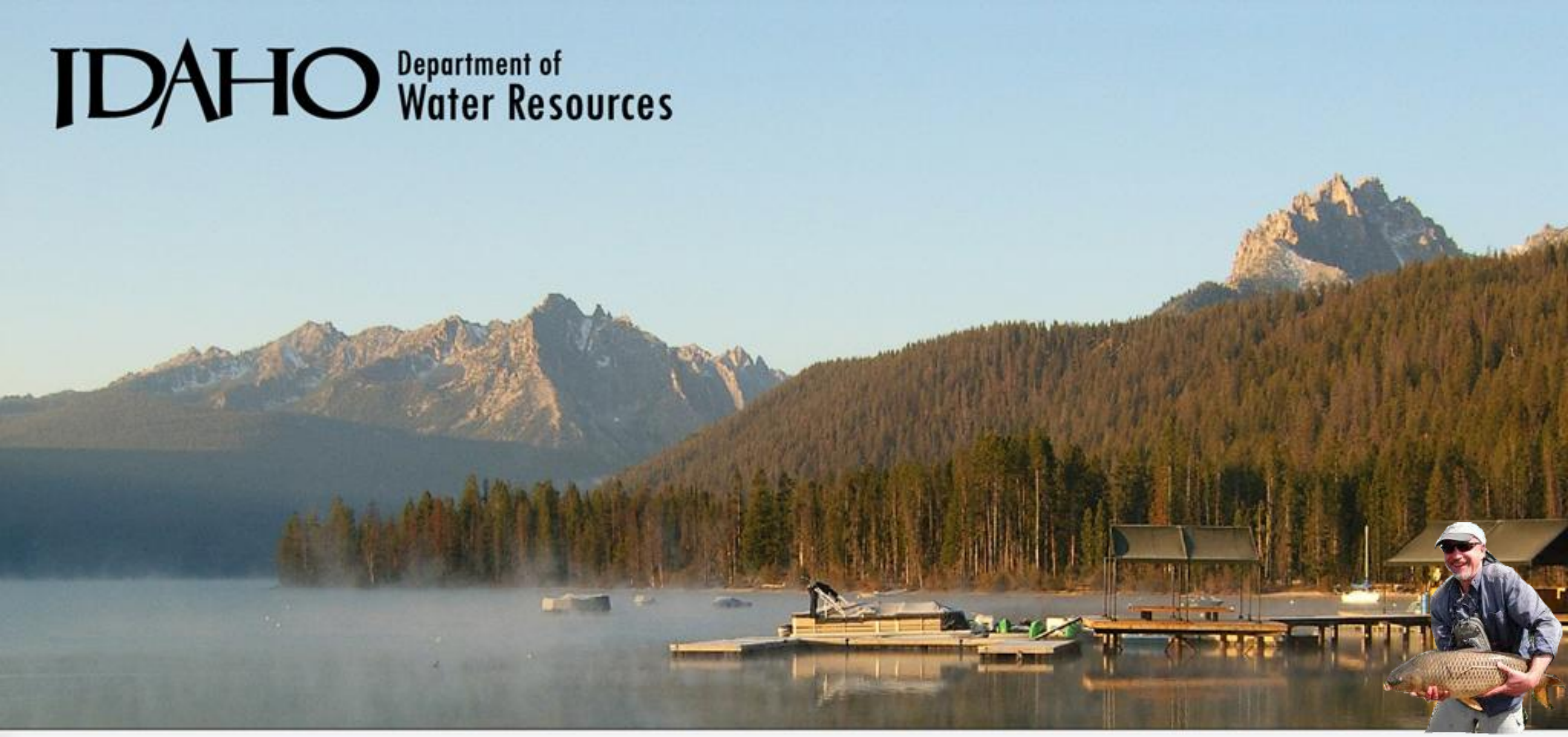
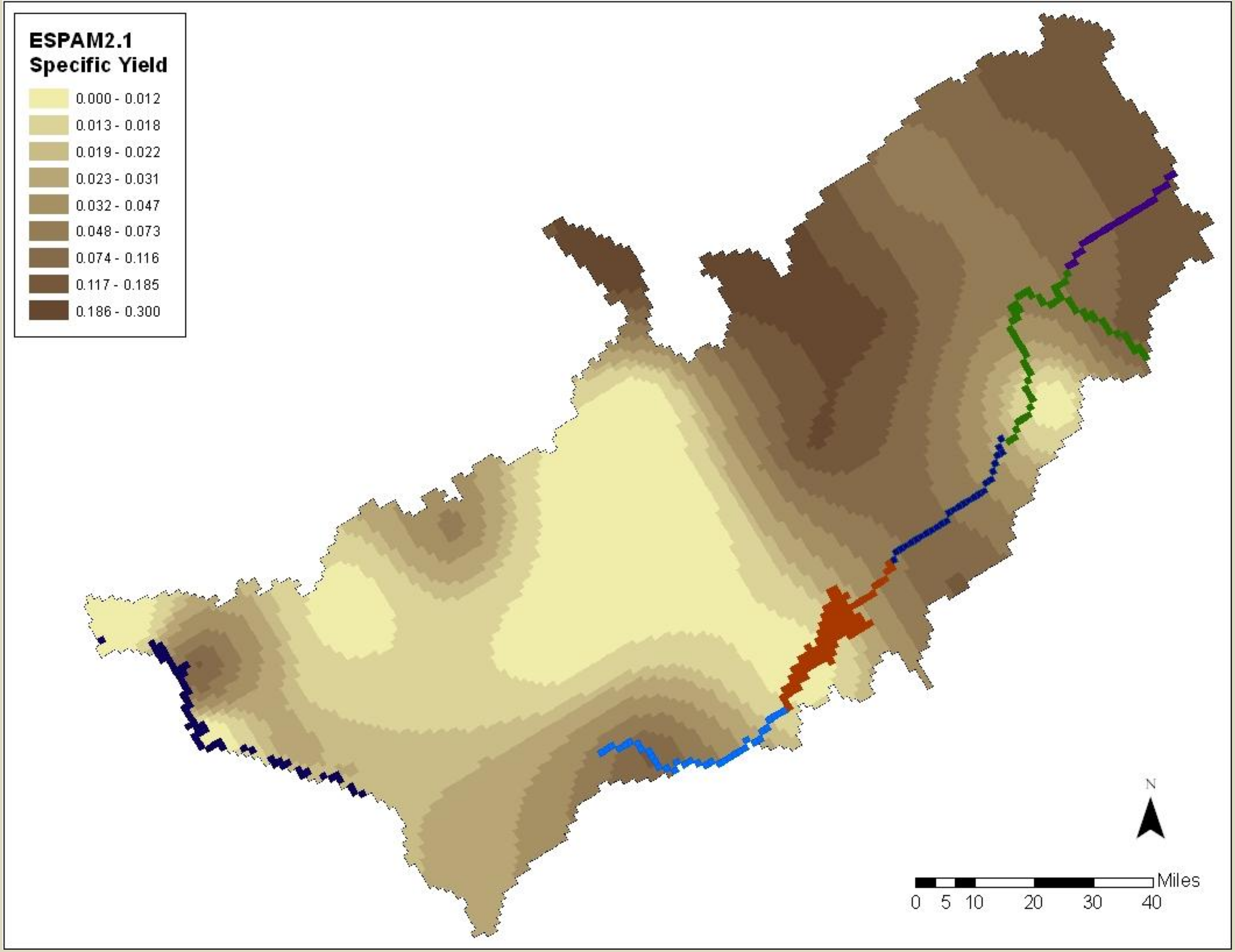


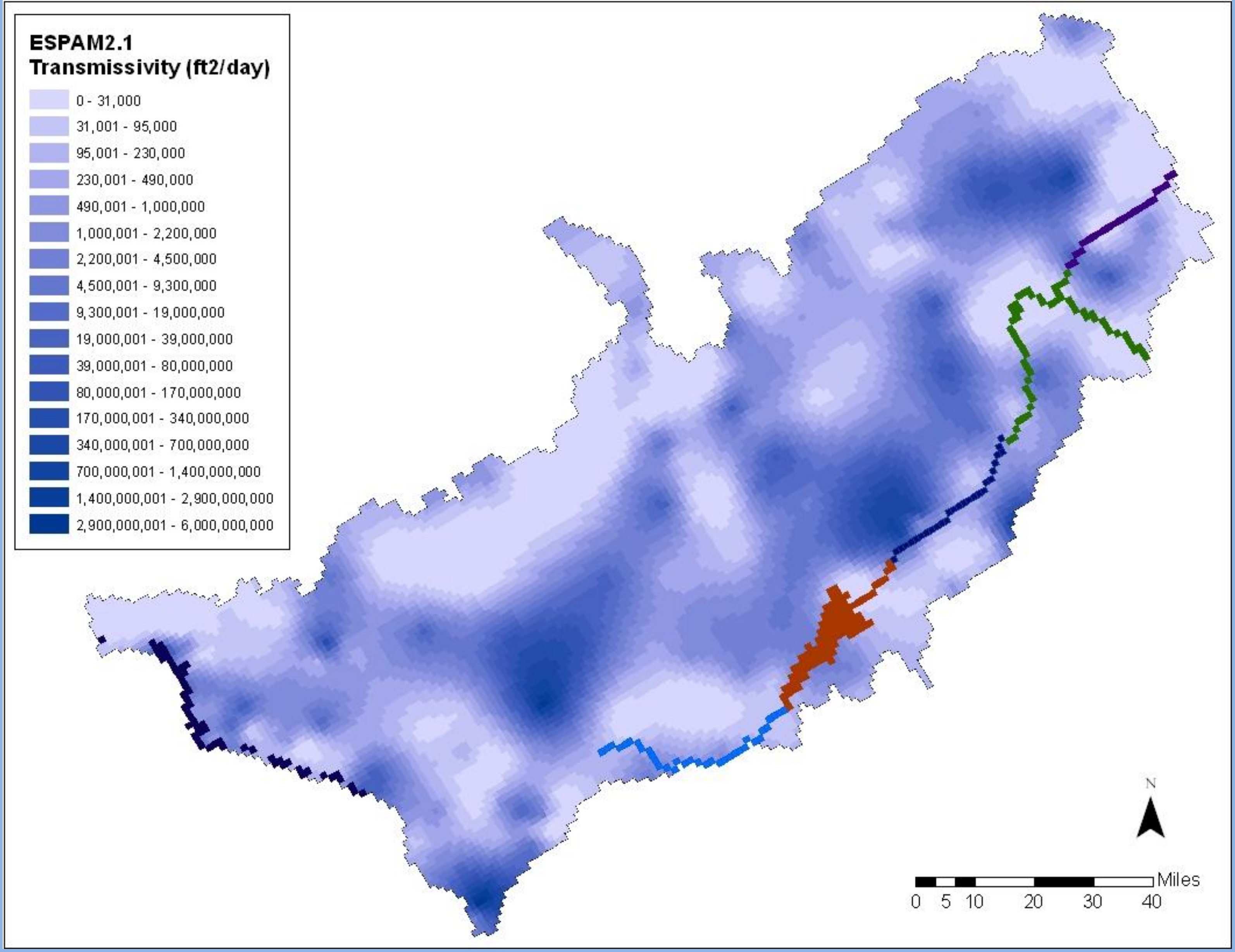
Allocation of Managed Recharge Impacts and Capacity Limitations – ESPAM2.1

Presented by Mike McVay

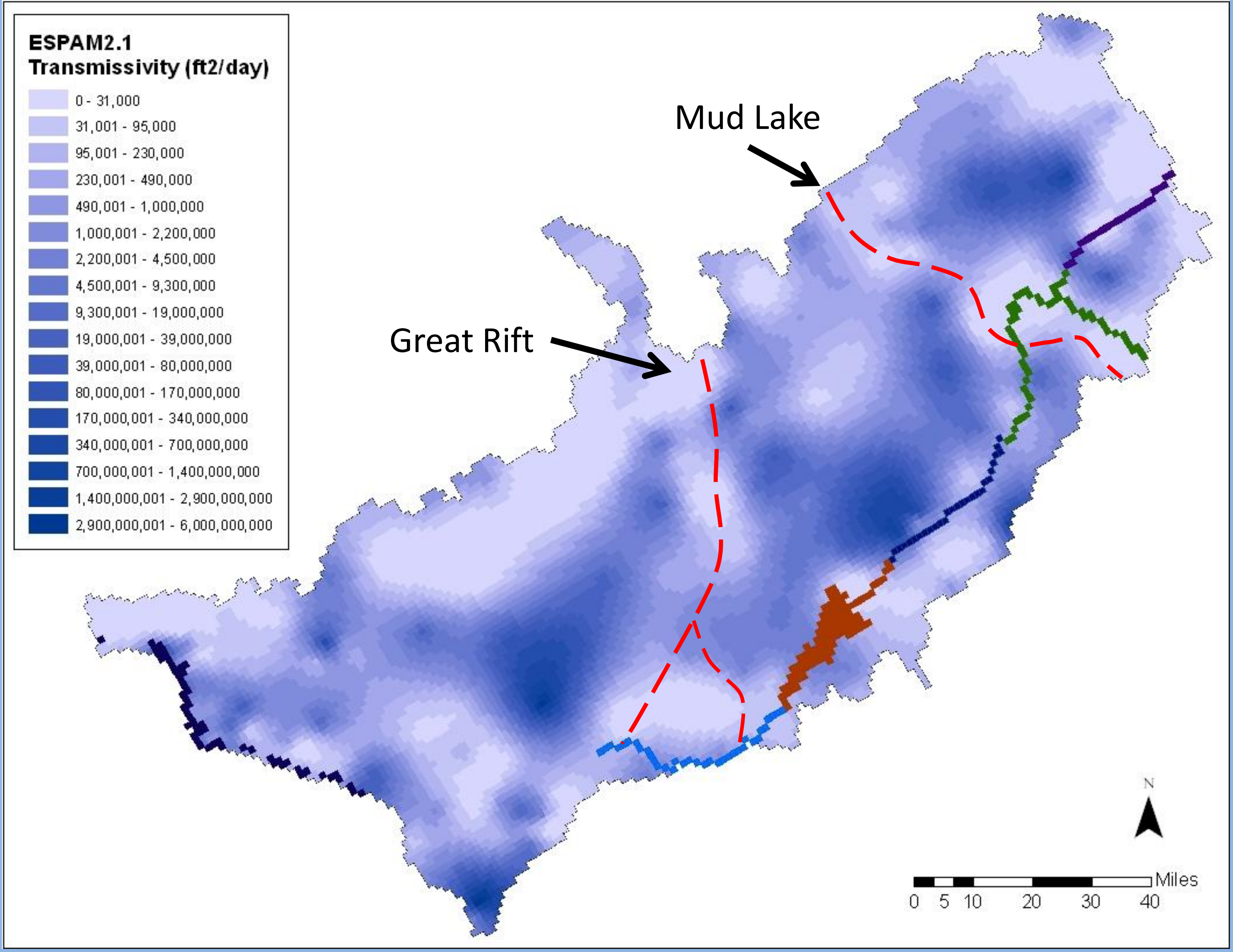
April 3, 2013



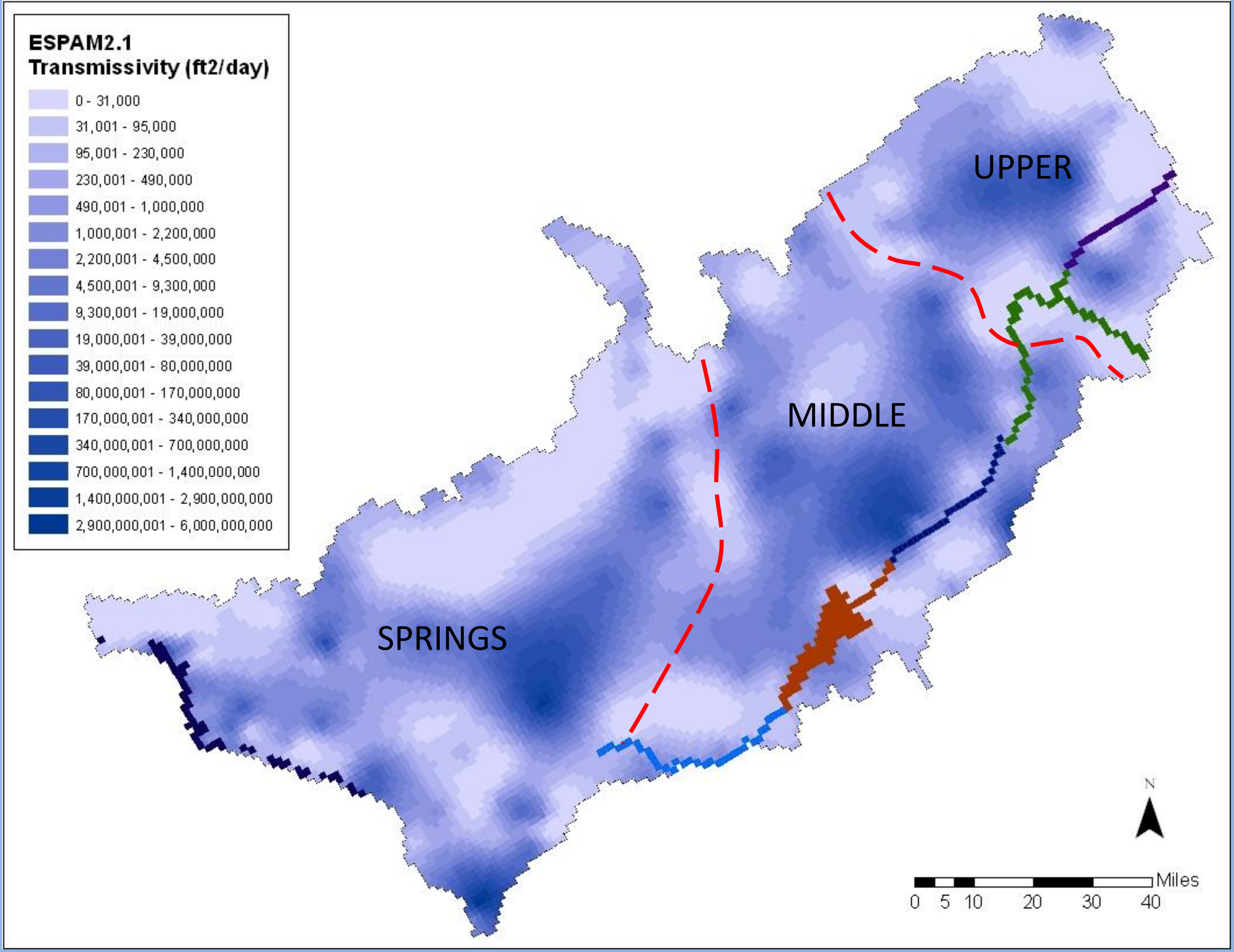
Lower Specific Yield results in less change in storage per change in water level.



Higher Transmissivity results in more widespread, smaller magnitude water-level responses.



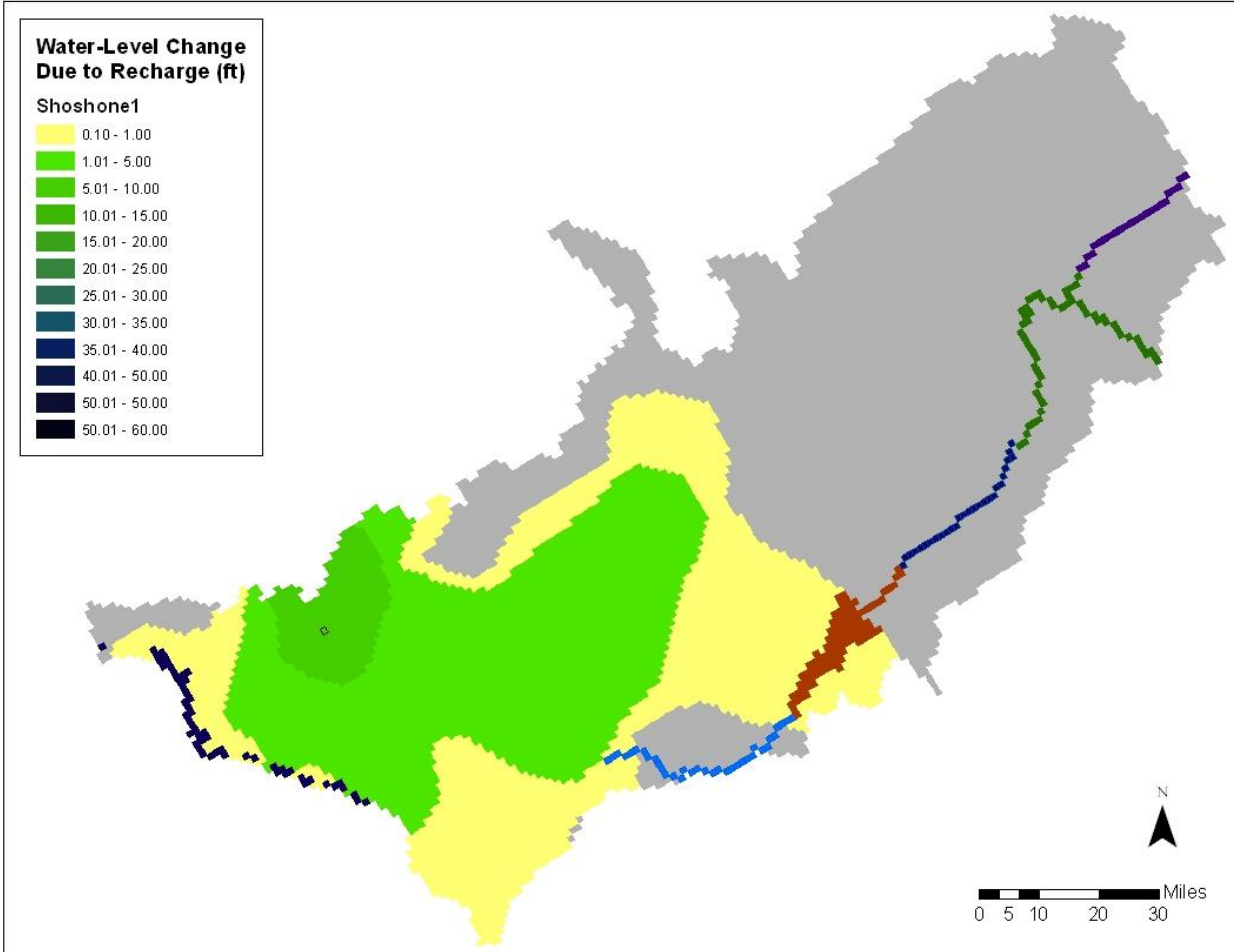
The Great Rift and Mud Lake "Barriers" are important controls on the impacts due to recharge.

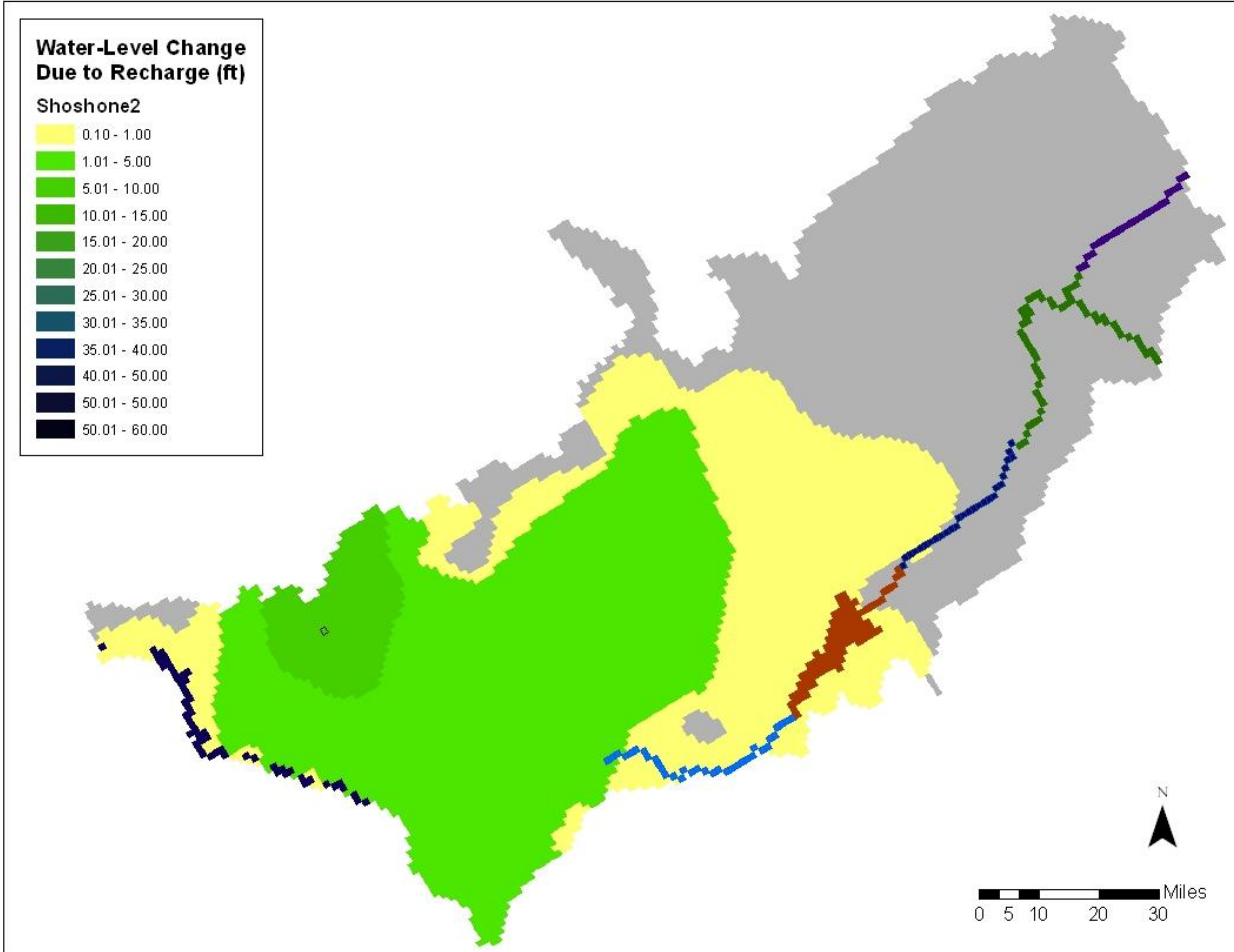


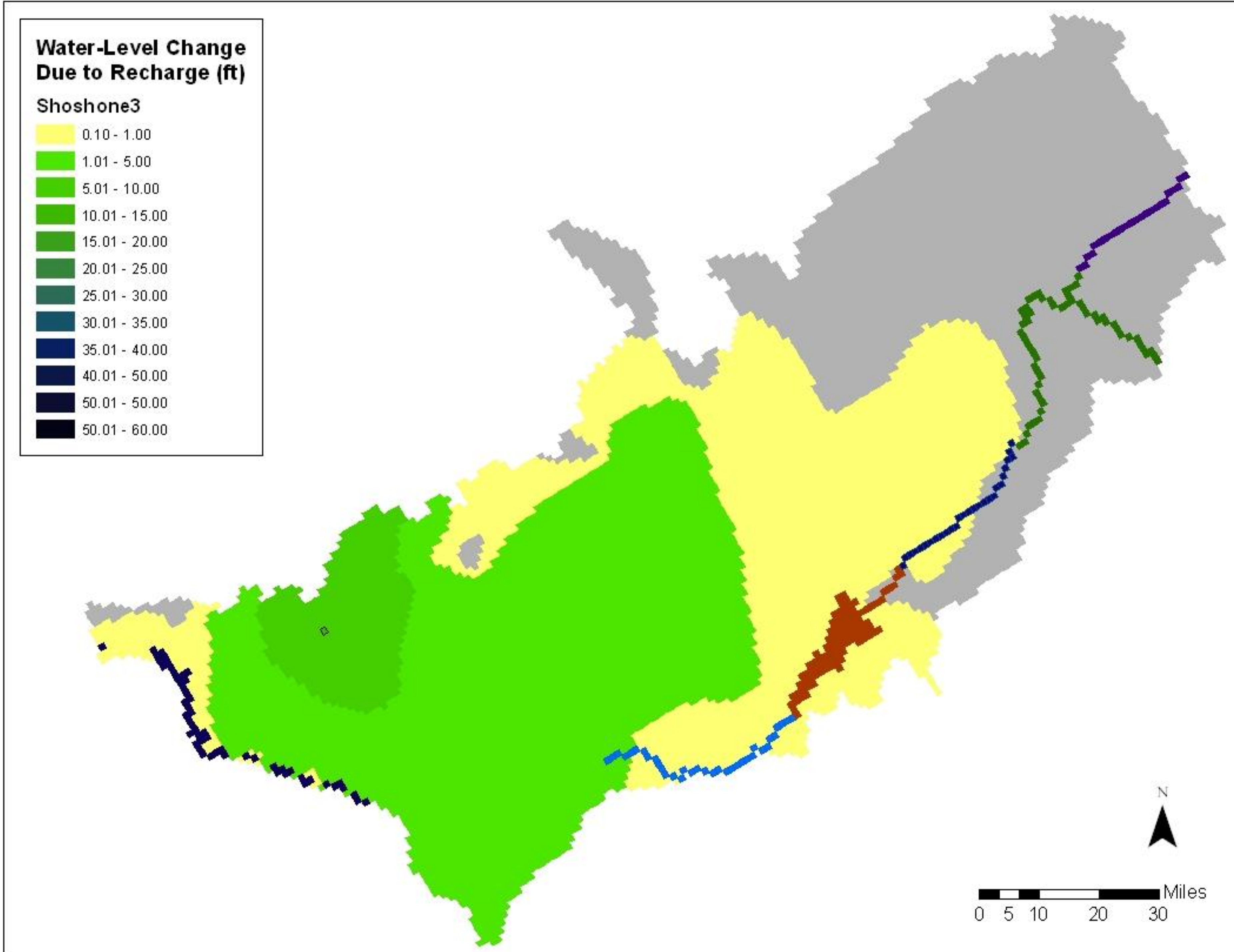
The Great Rift and Mud Lake "Barriers" are important controls on the impacts due to recharge.

“Johnson” Recharge Evaluation

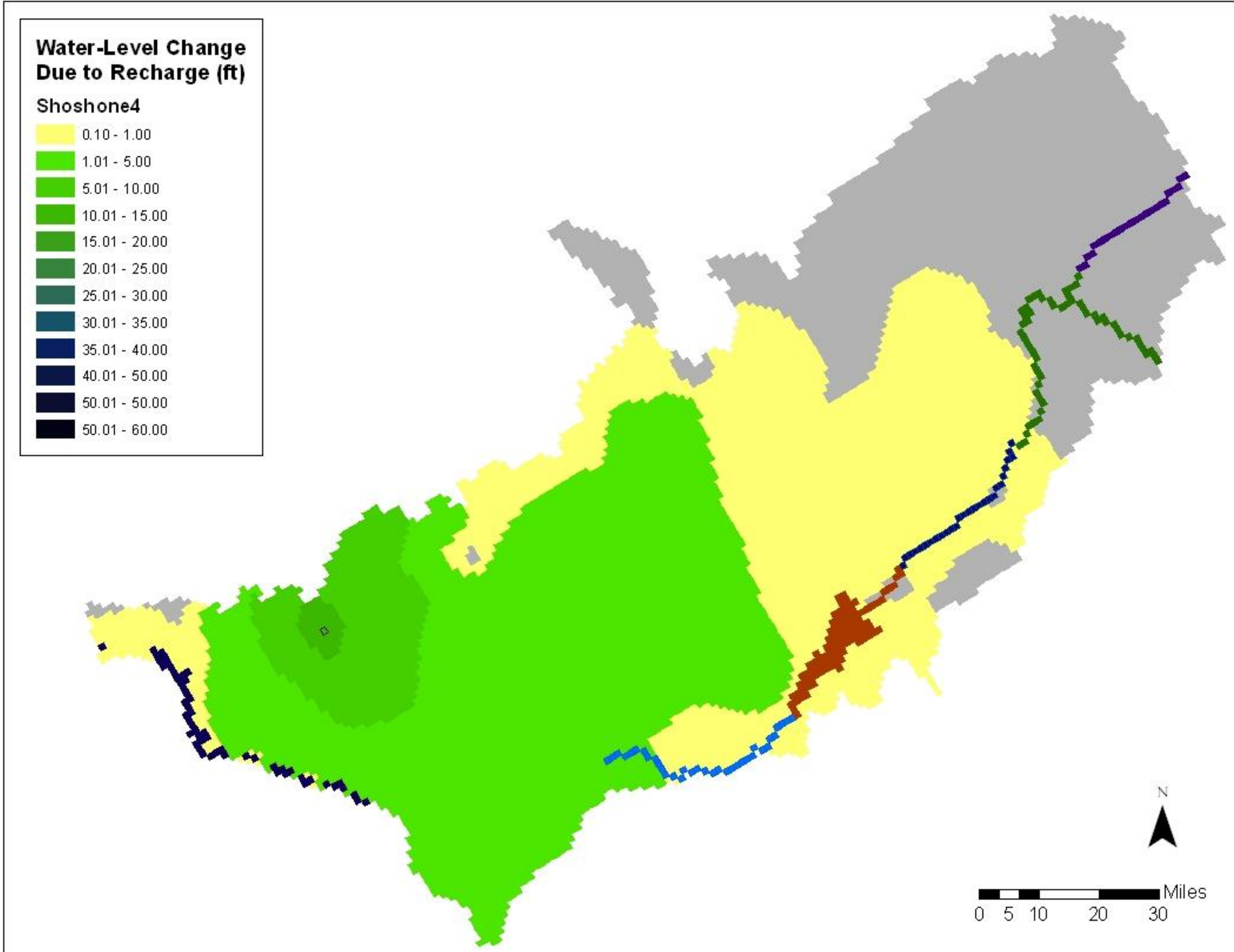
- Recharge each site at 100,000 AF/year
  - Model run in Superposition Mode.
  - Model represents recharge as direct injection into regional aquifer.
  - **Exaggerated rate allows illustration of aquifer behavior.**
  - Does not include transmission losses to discrete sites.

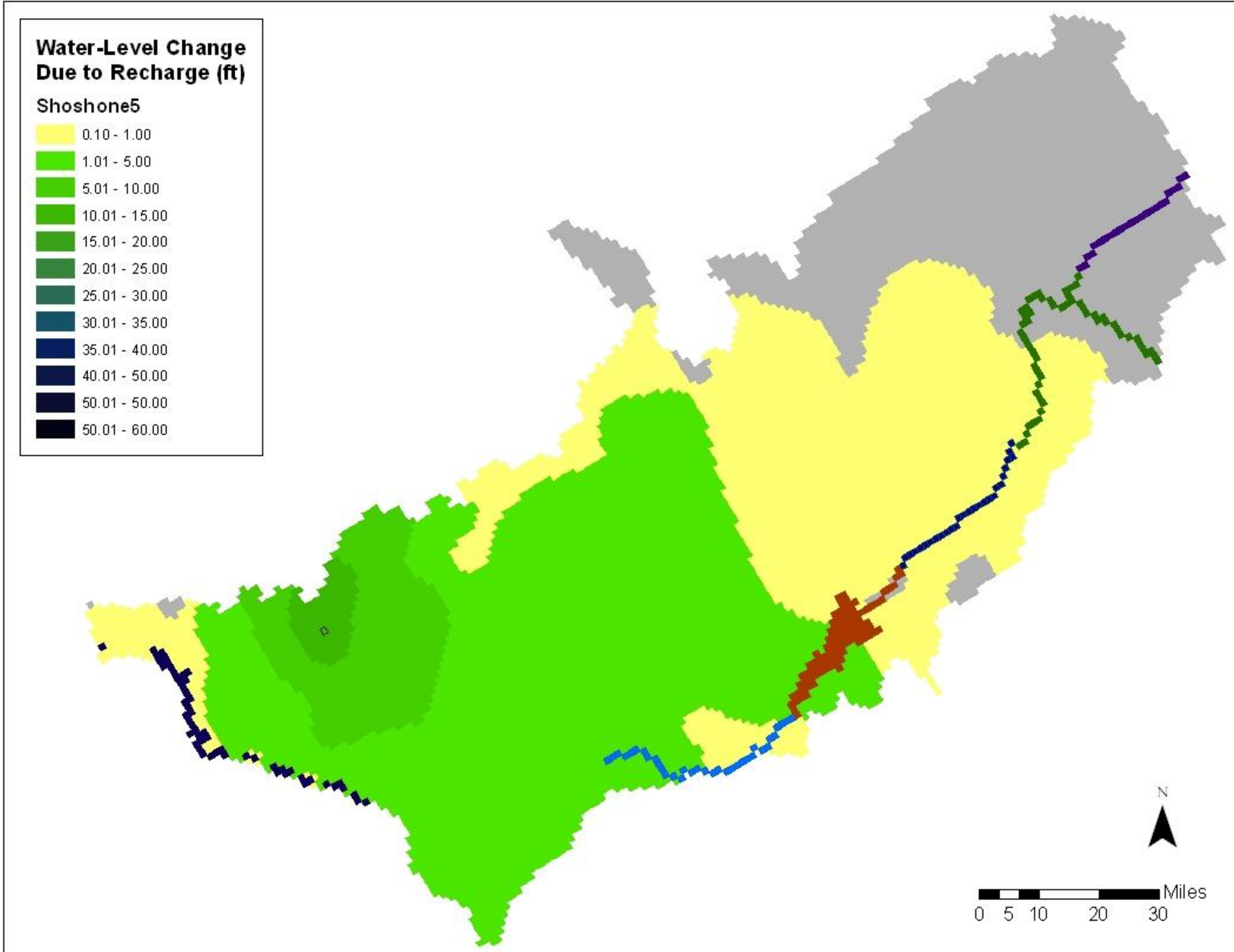

Water-Level Change Due to Recharge (ft)
Shoshone1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Shoshone2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

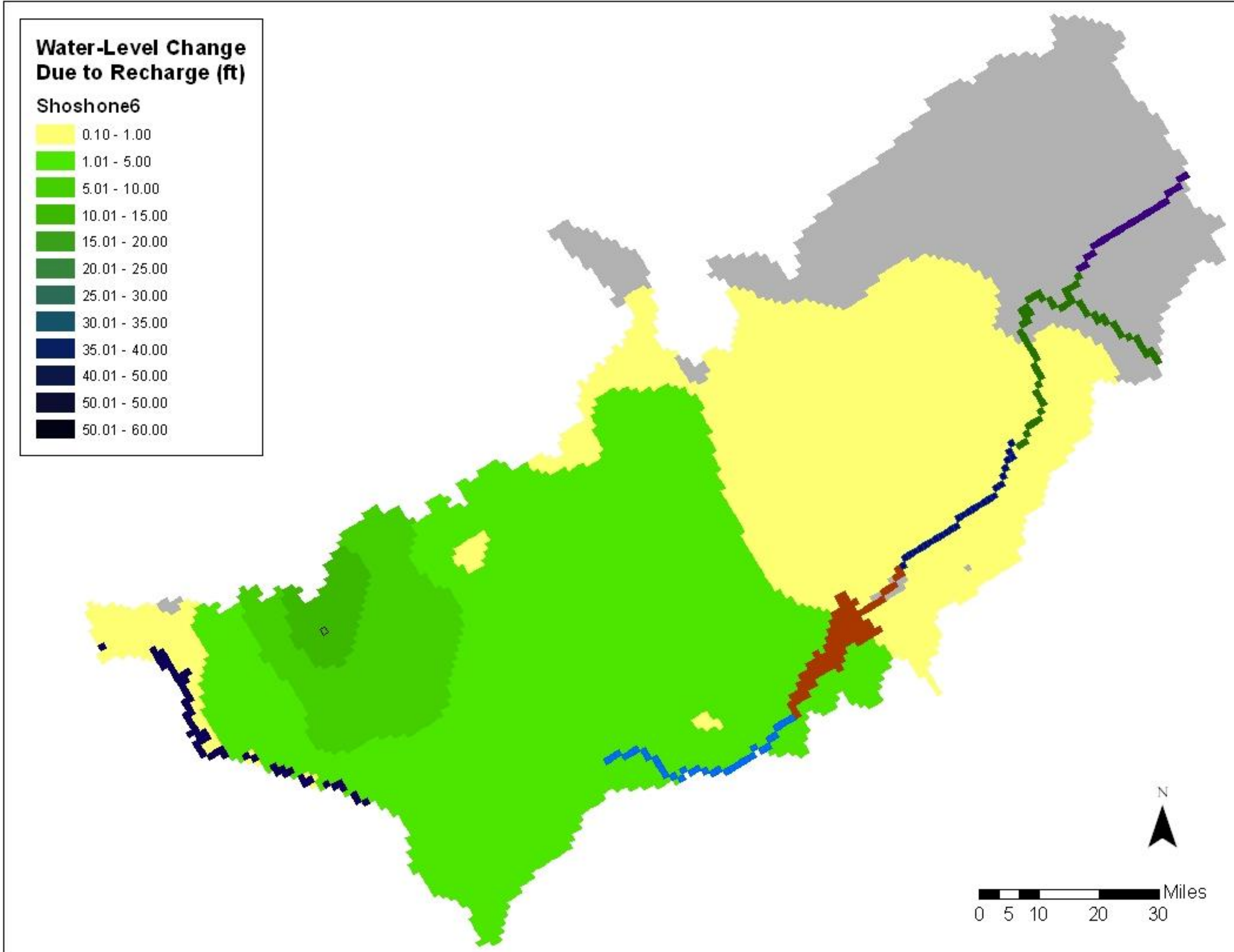


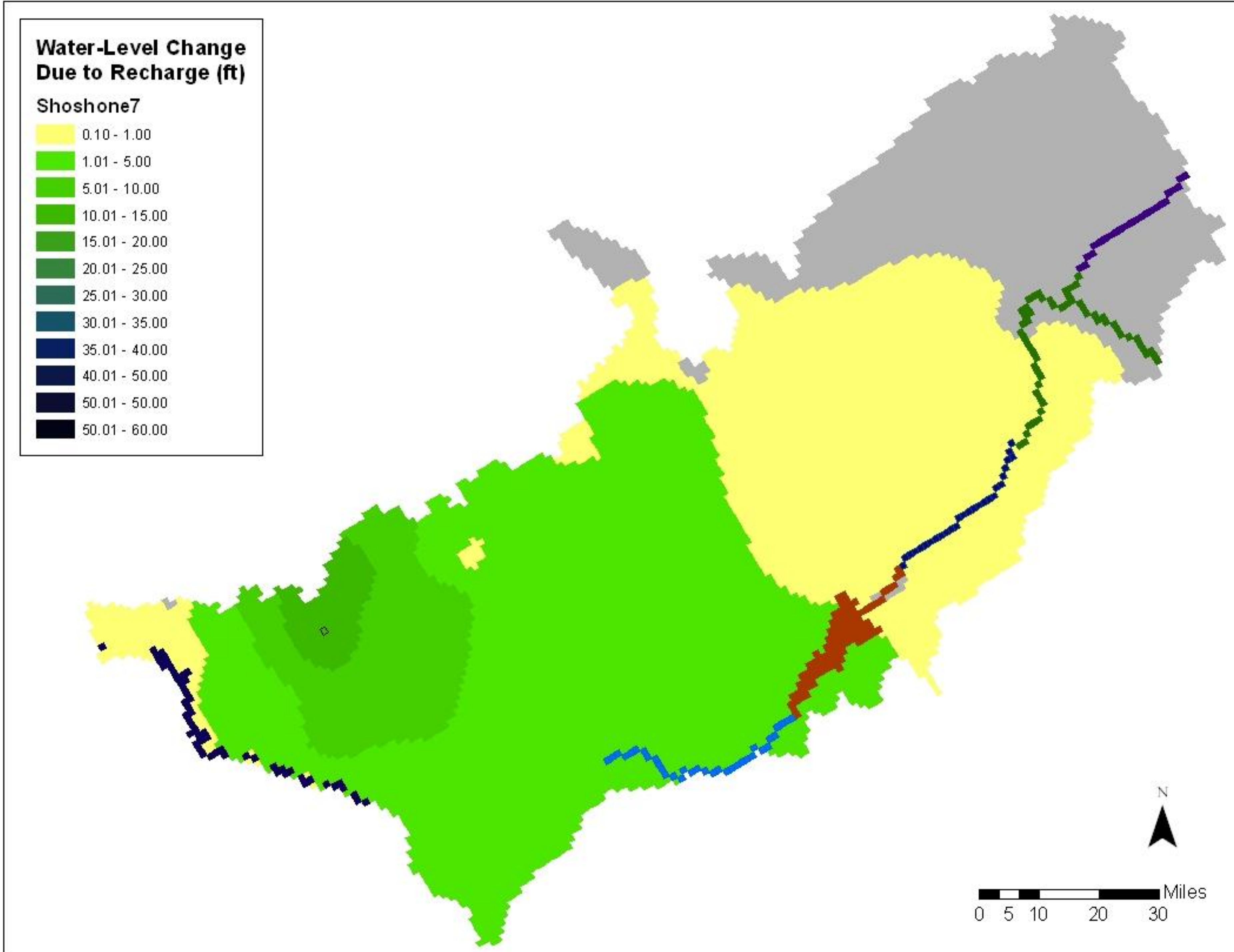
Water-Level Change
Due to Recharge (ft)
Shoshone3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

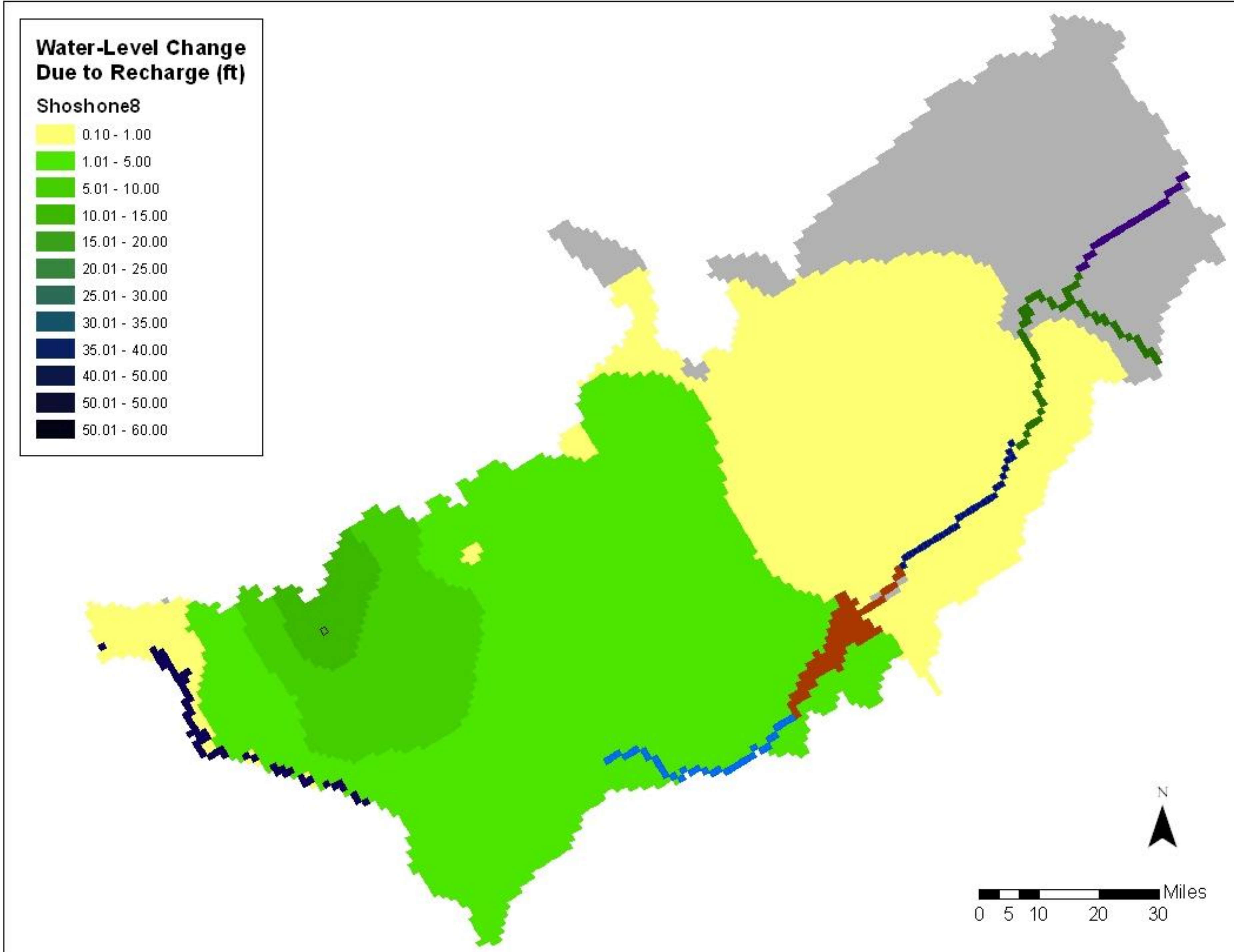

Water-Level Change Due to Recharge (ft)
Shoshone4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

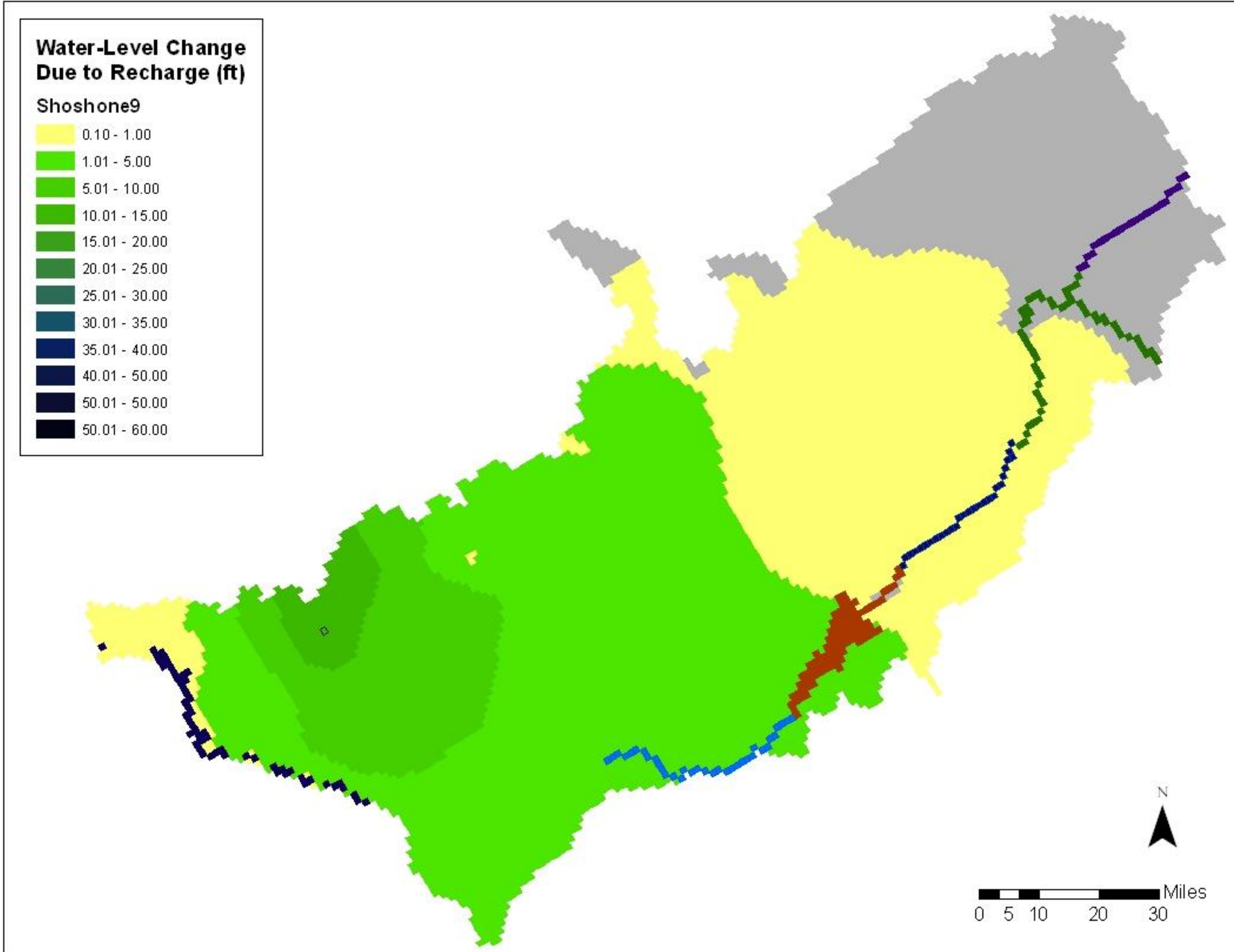


Water-Level Change Due to Recharge (ft)
Shoshone5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
0 5 10 20 30
Miles

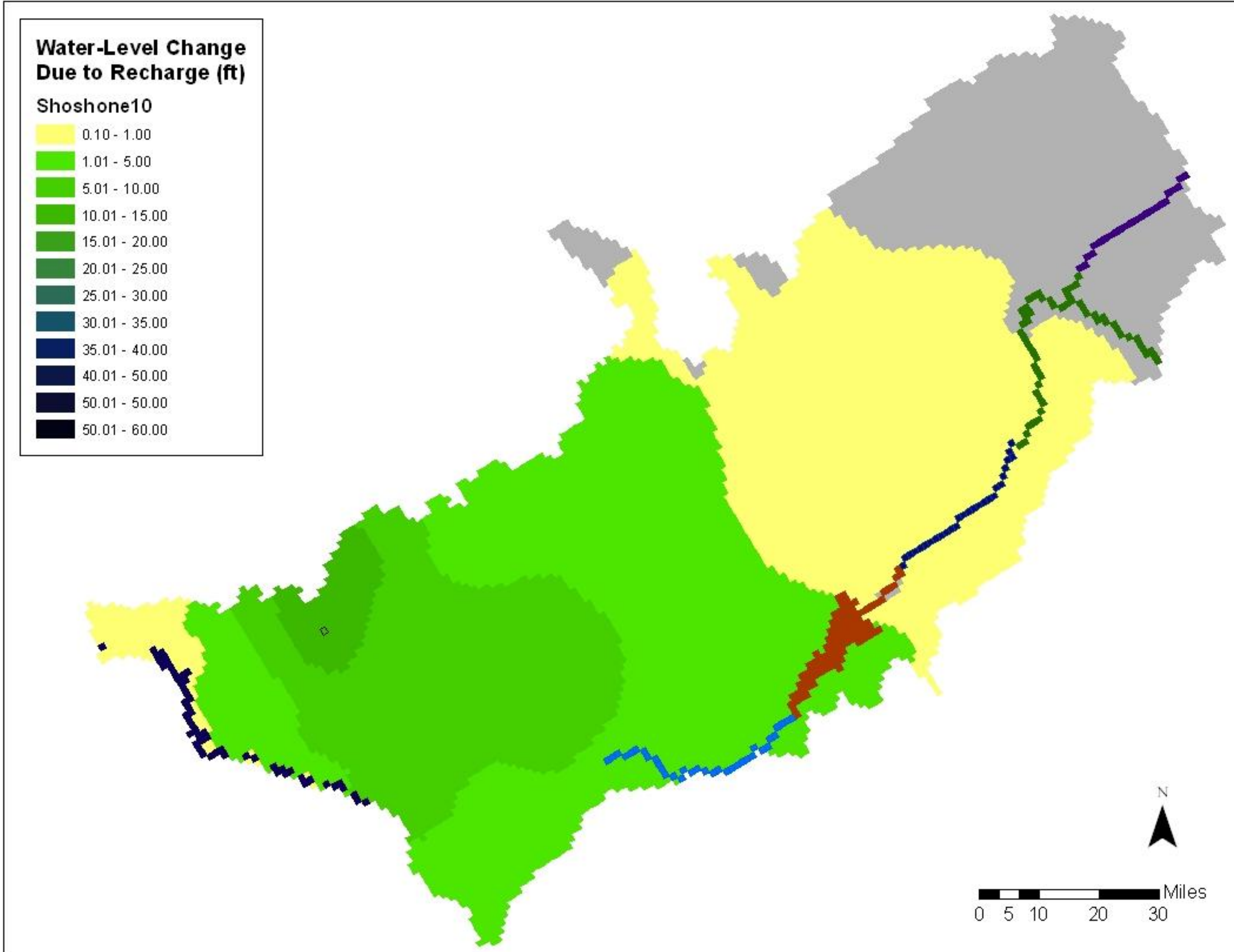

Water-Level Change
Due to Recharge (ft)
Shoshone6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

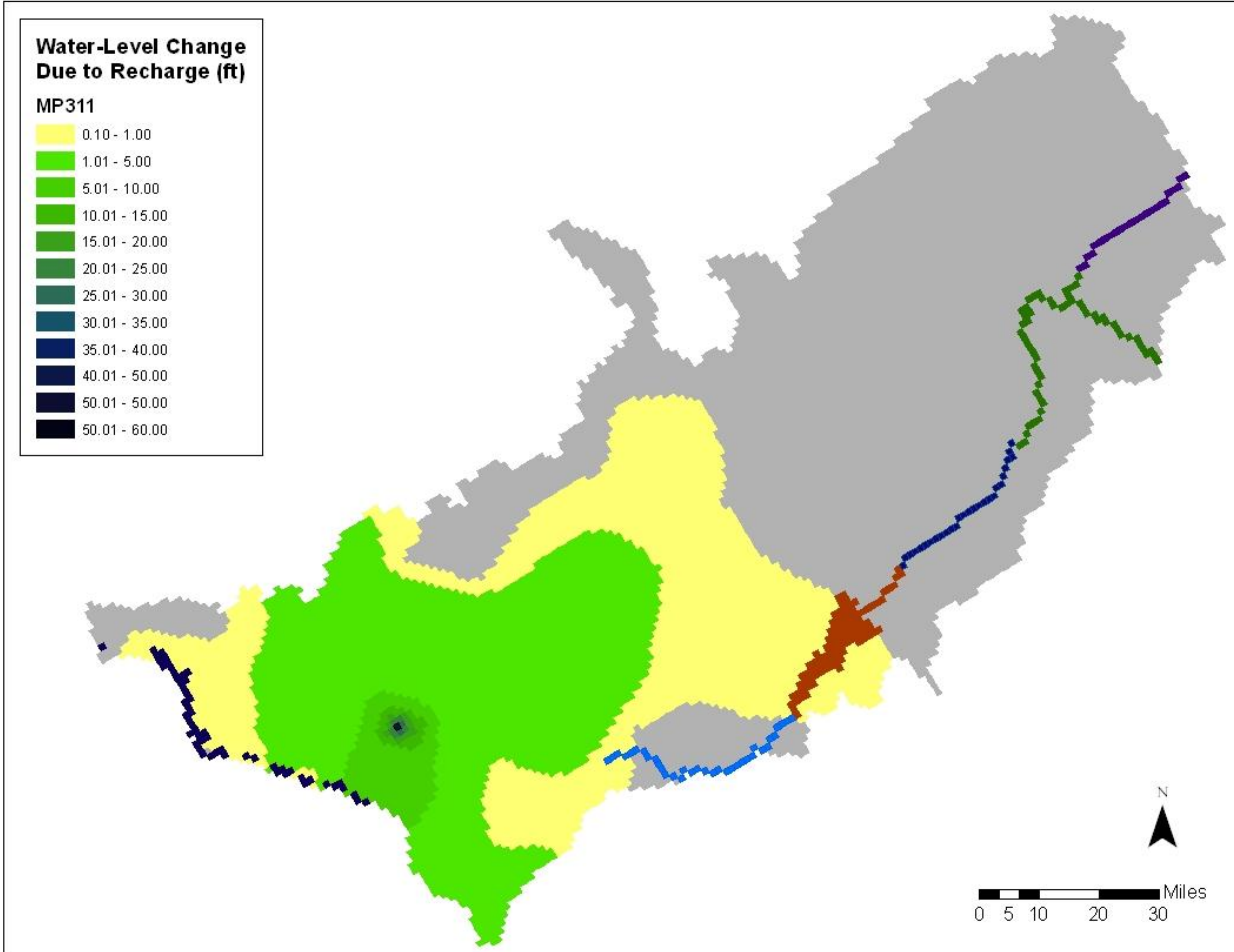

Water-Level Change Due to Recharge (ft)
Shoshone7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Shoshone8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

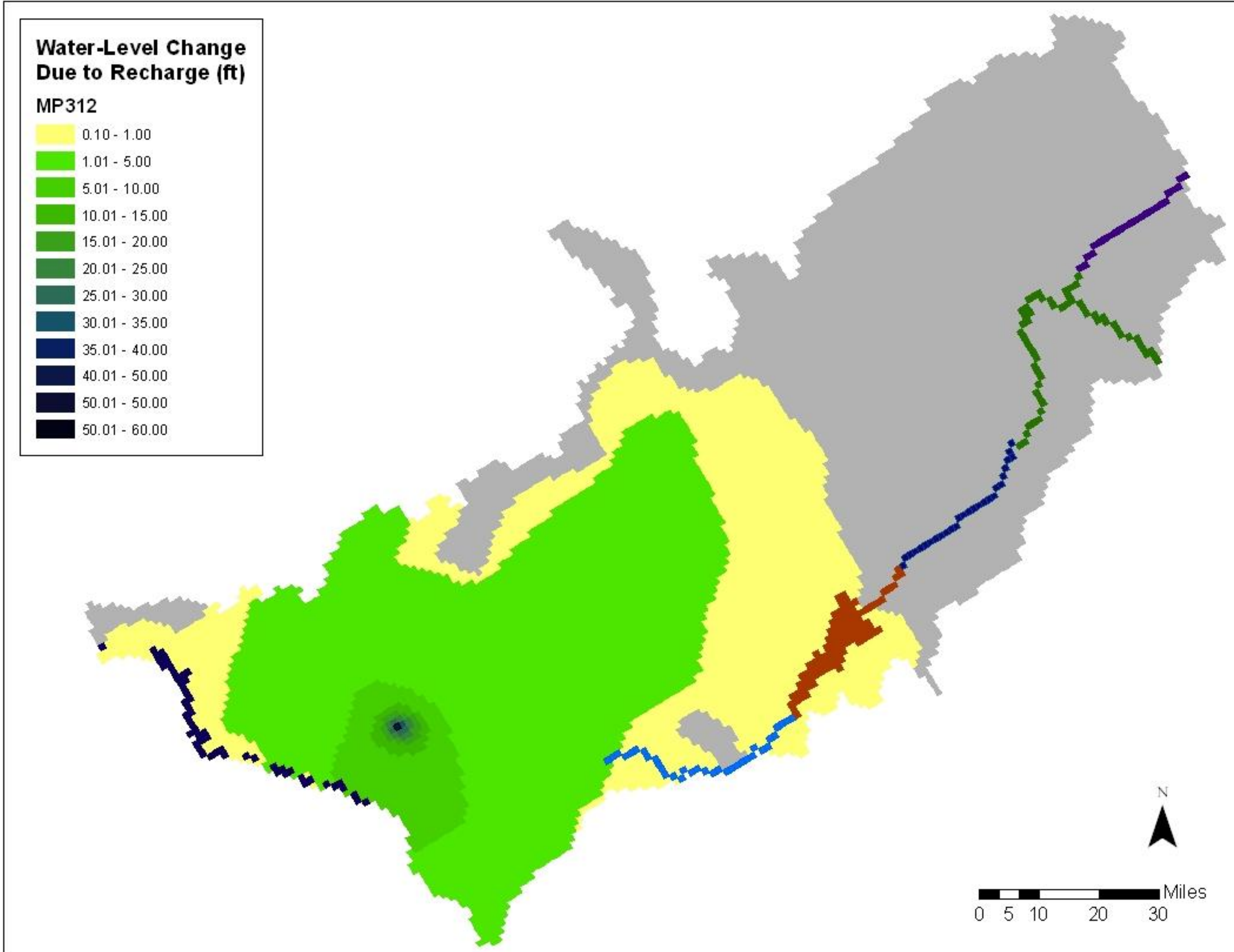


Water-Level Change
Due to Recharge (ft)
Shoshone9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

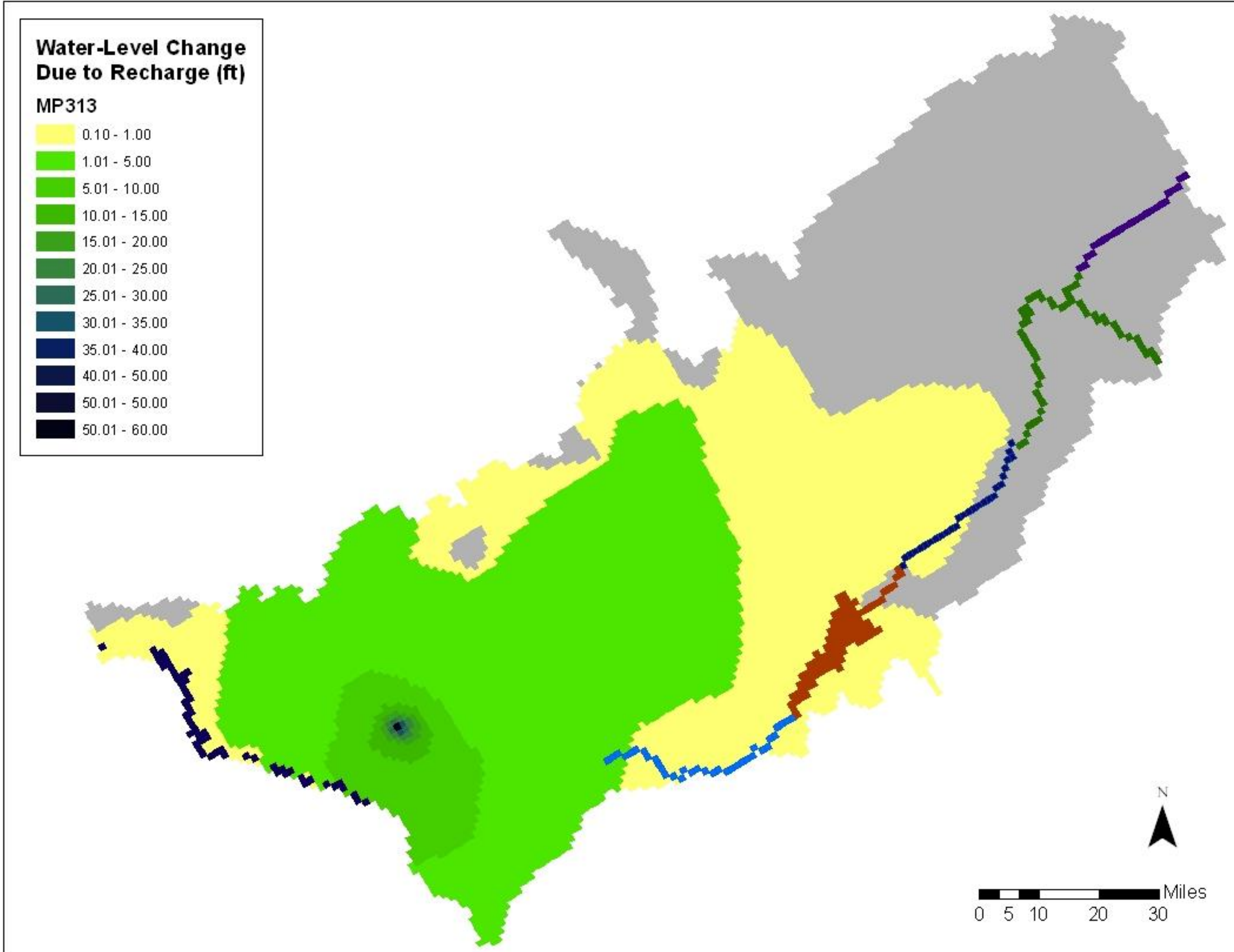

Water-Level Change Due to Recharge (ft)
Shoshone10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

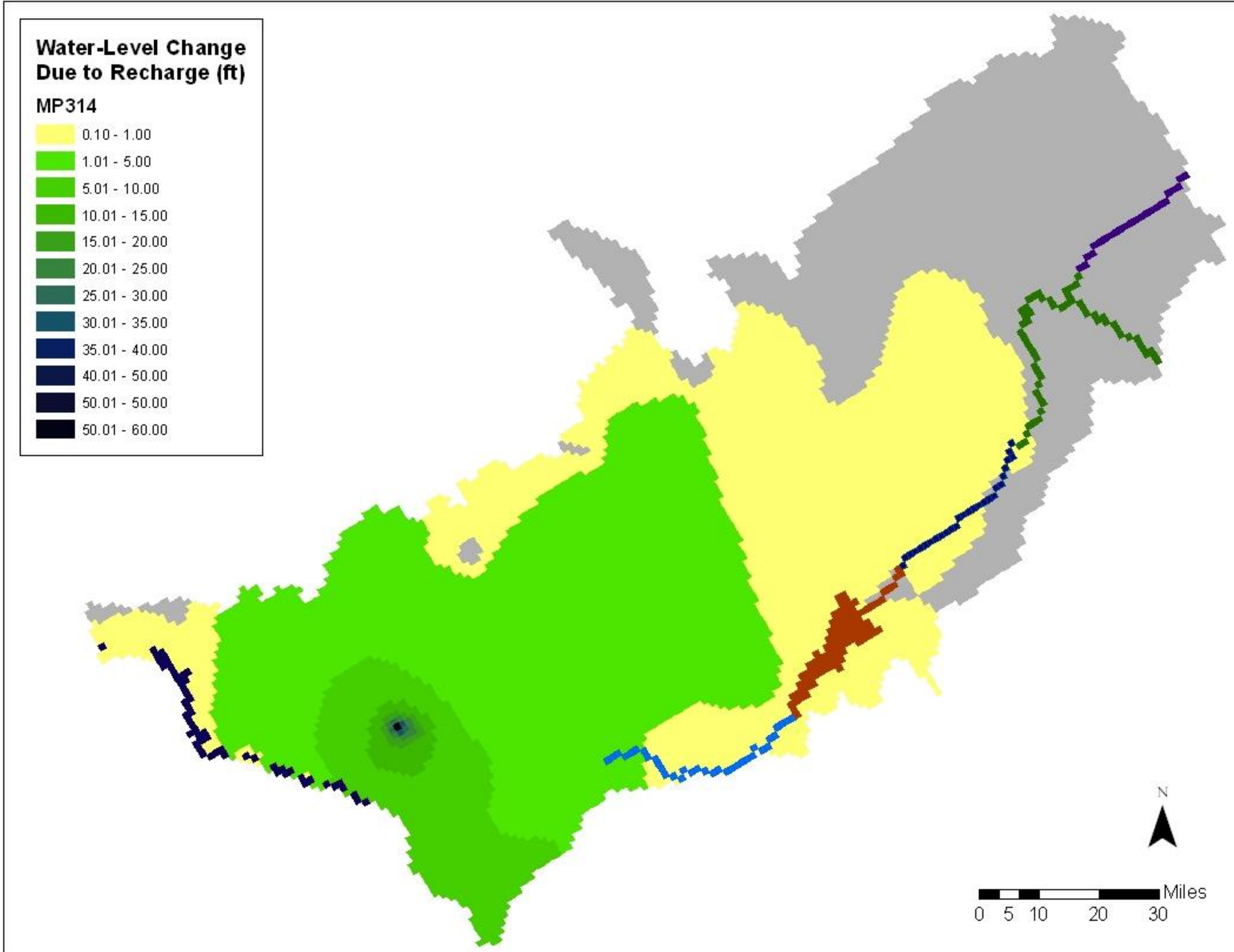


Water-Level Change Due to Recharge (ft)
MP311
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

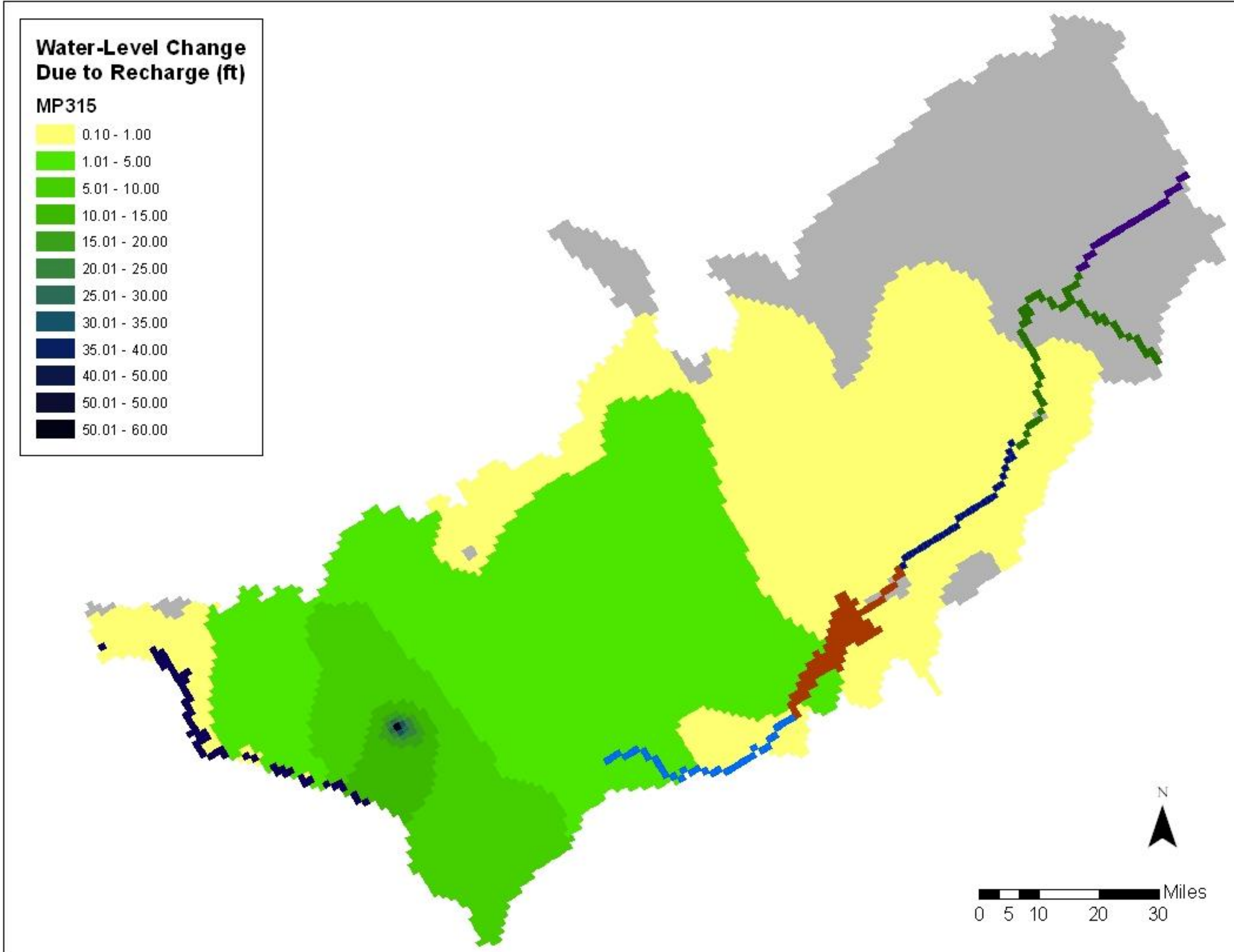


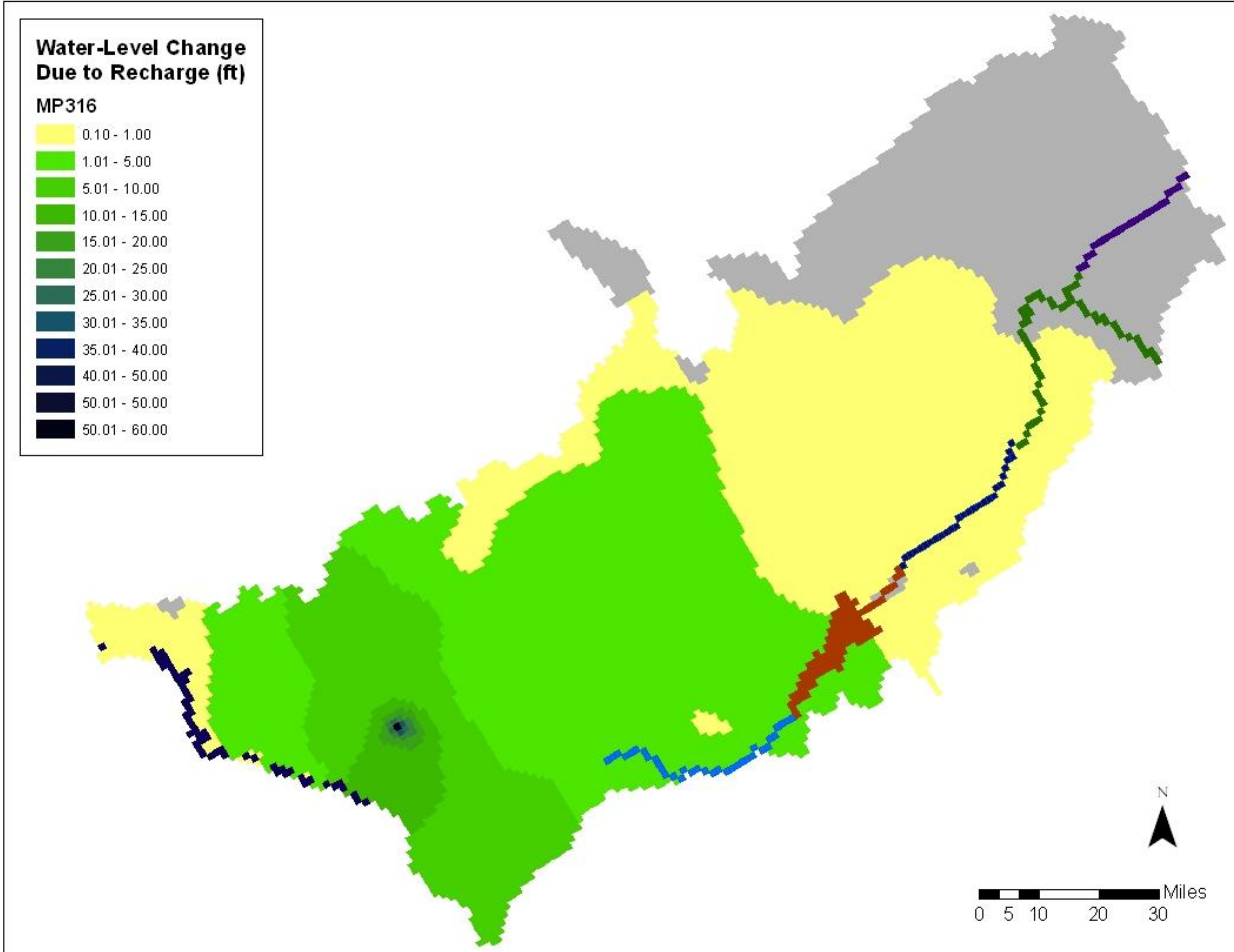
Water-Level Change
Due to Recharge (ft)
MP312
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

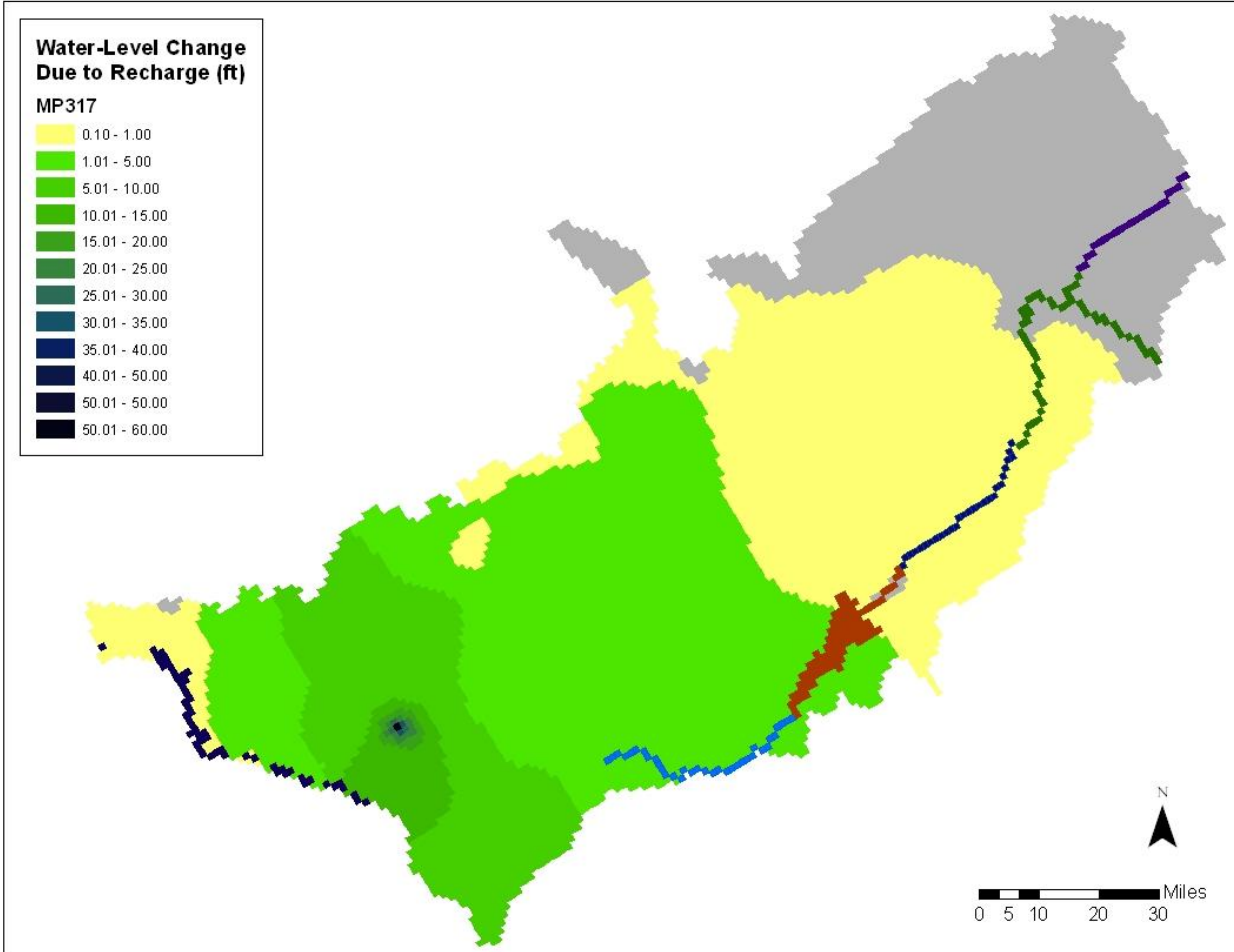

Water-Level Change Due to Recharge (ft)
MP313
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

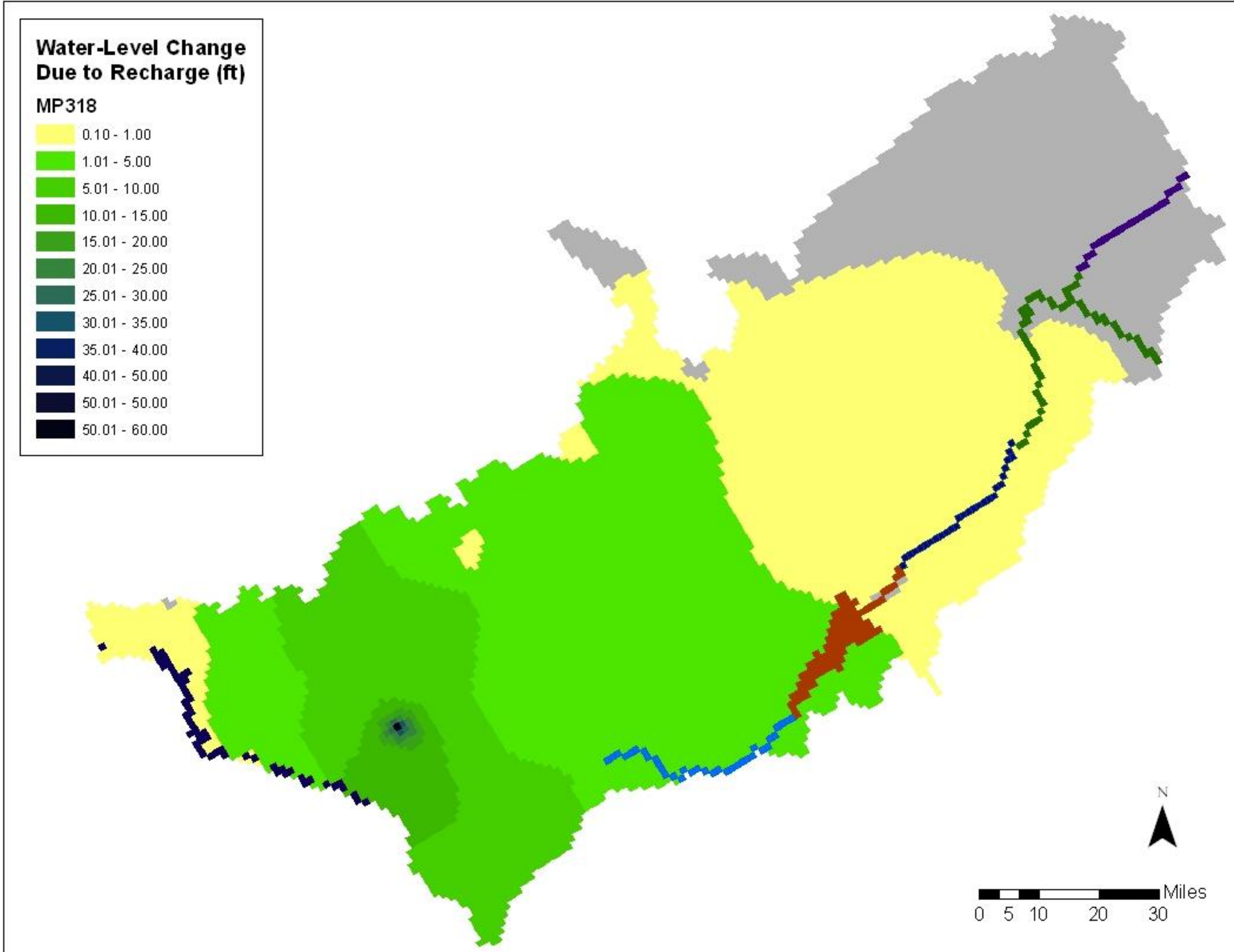


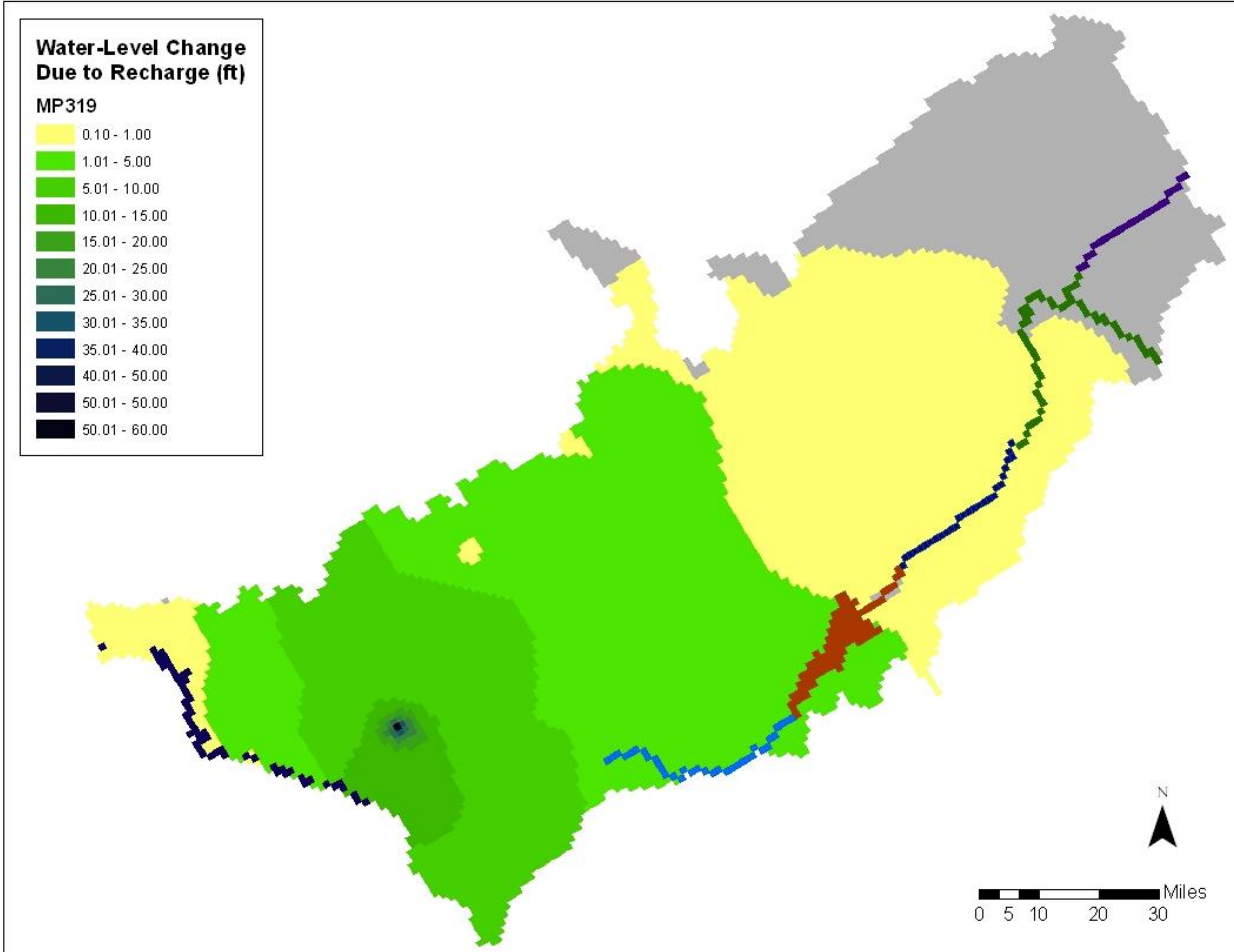
Water-Level Change
Due to Recharge (ft)
MP314
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
MP315
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

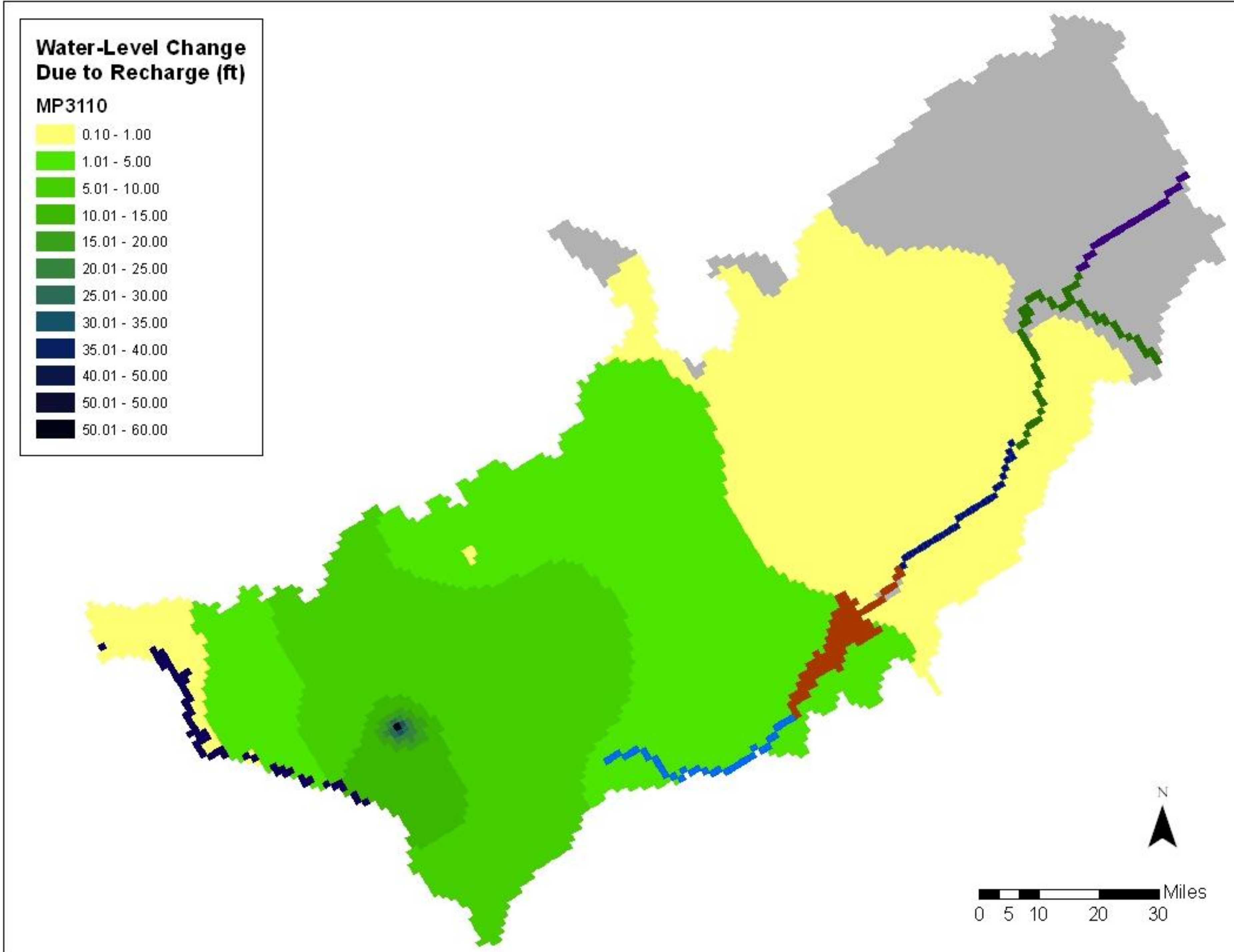

Water-Level Change Due to Recharge (ft)
MP316
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

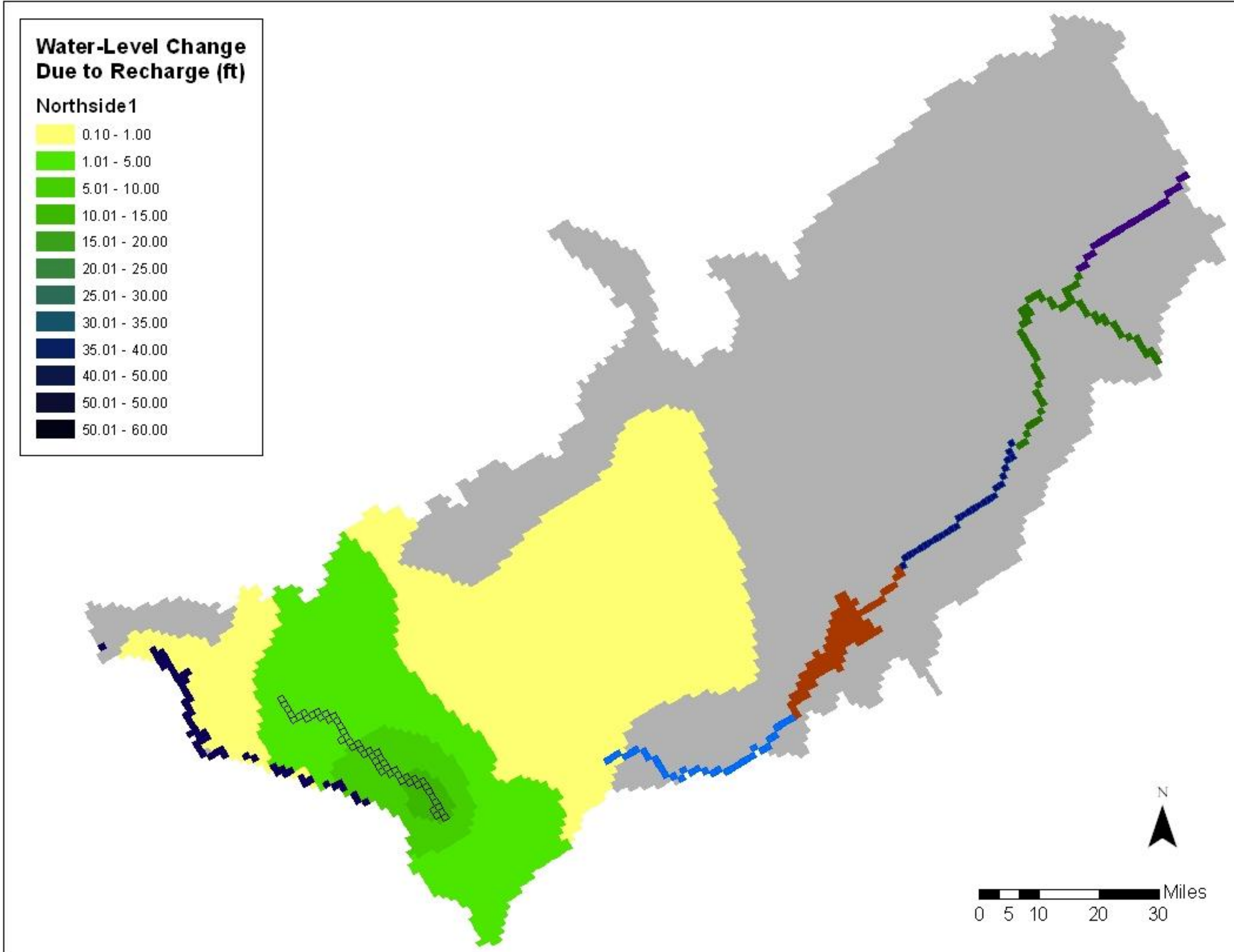

Water-Level Change
Due to Recharge (ft)
MP317
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

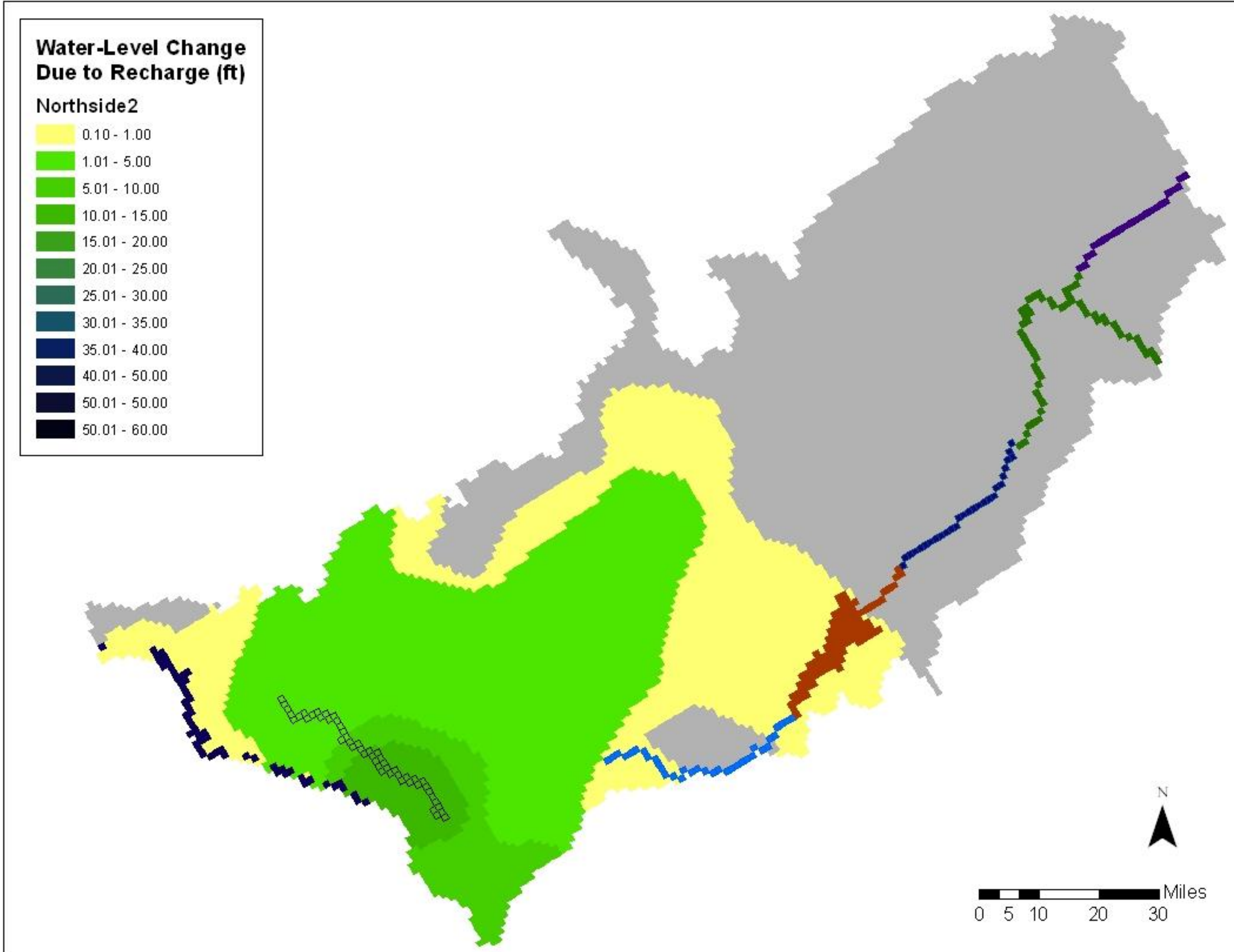

Water-Level Change
Due to Recharge (ft)
MP318
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



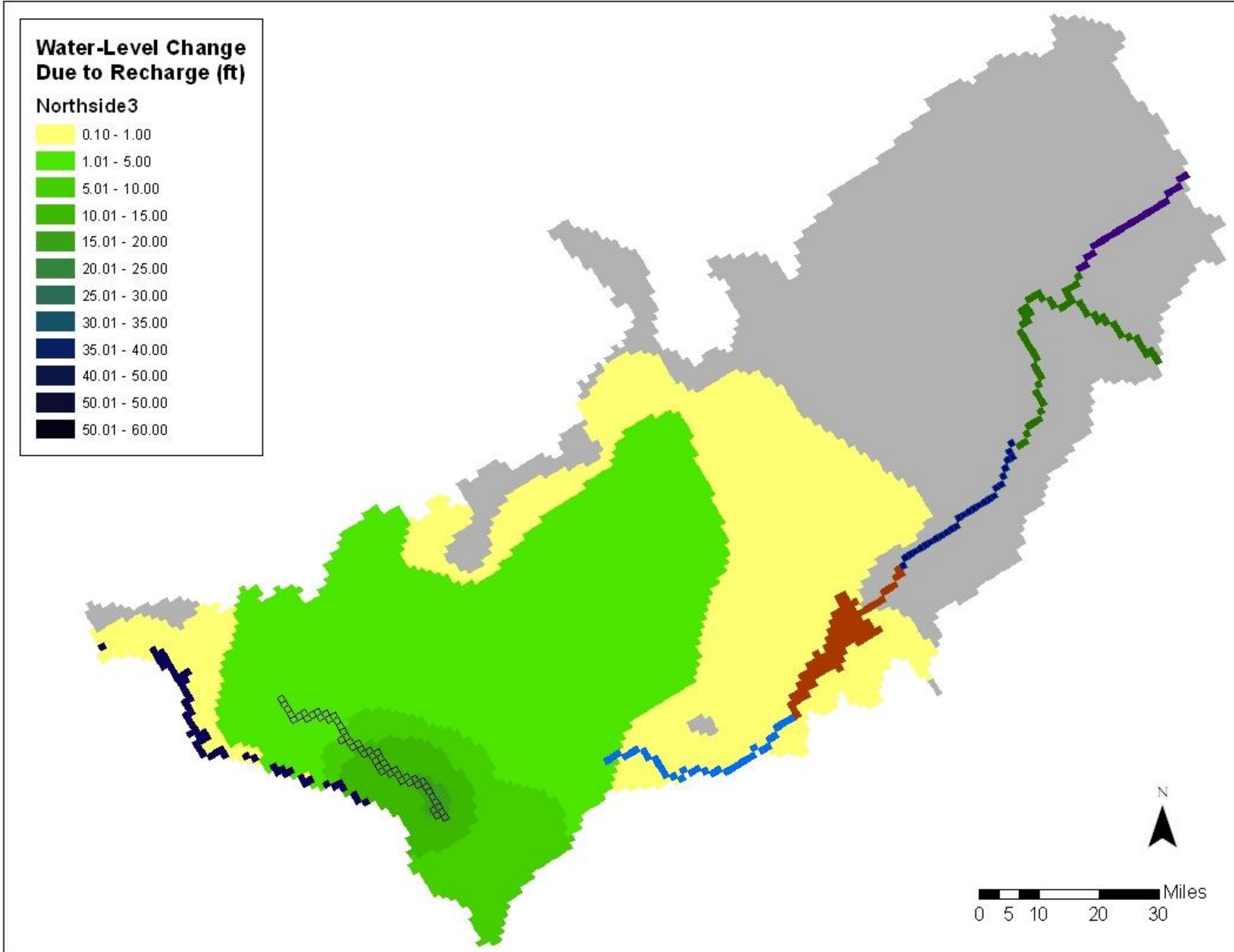
Water-Level Change
Due to Recharge (ft)
MP319
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

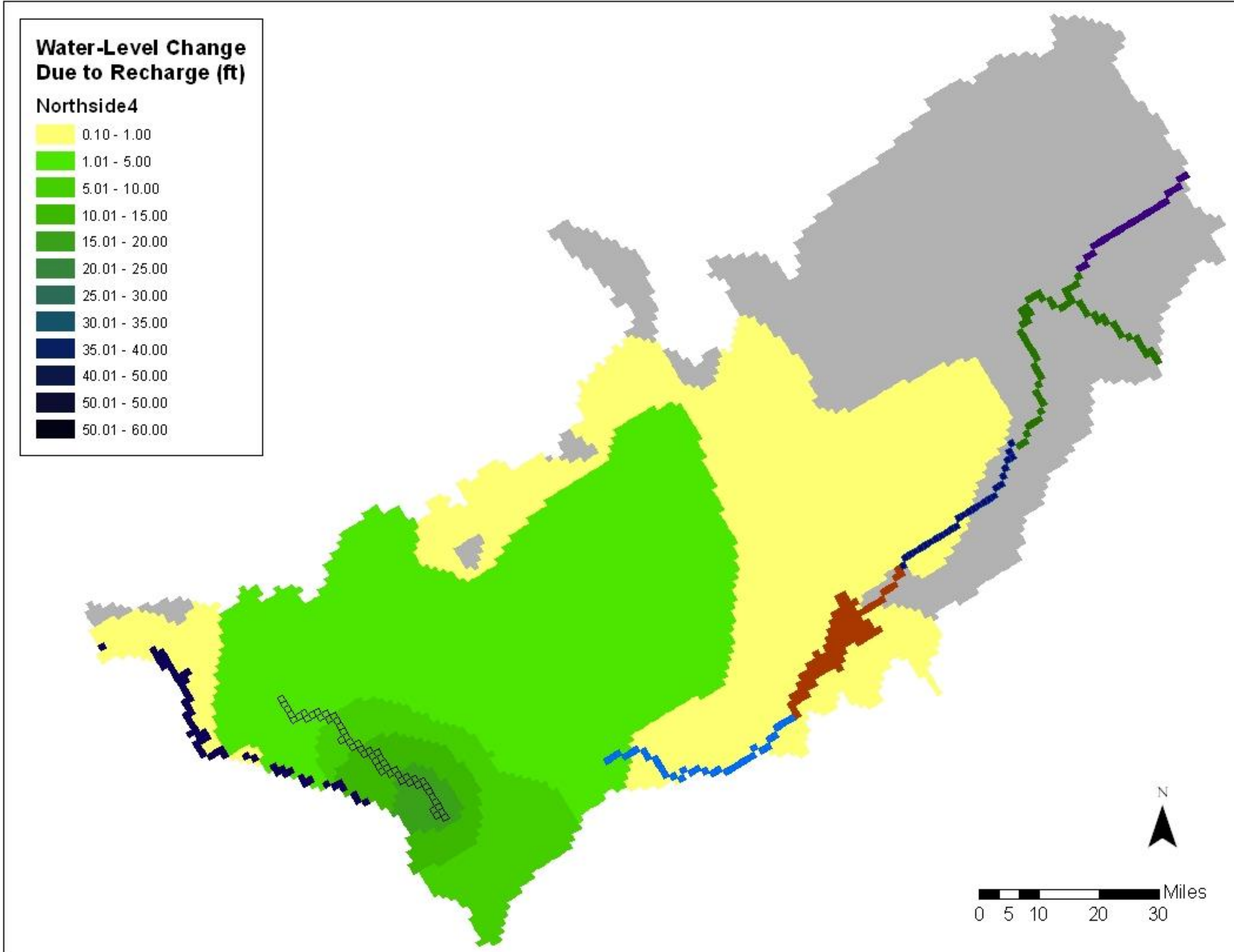

Water-Level Change Due to Recharge (ft)
MP3110
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

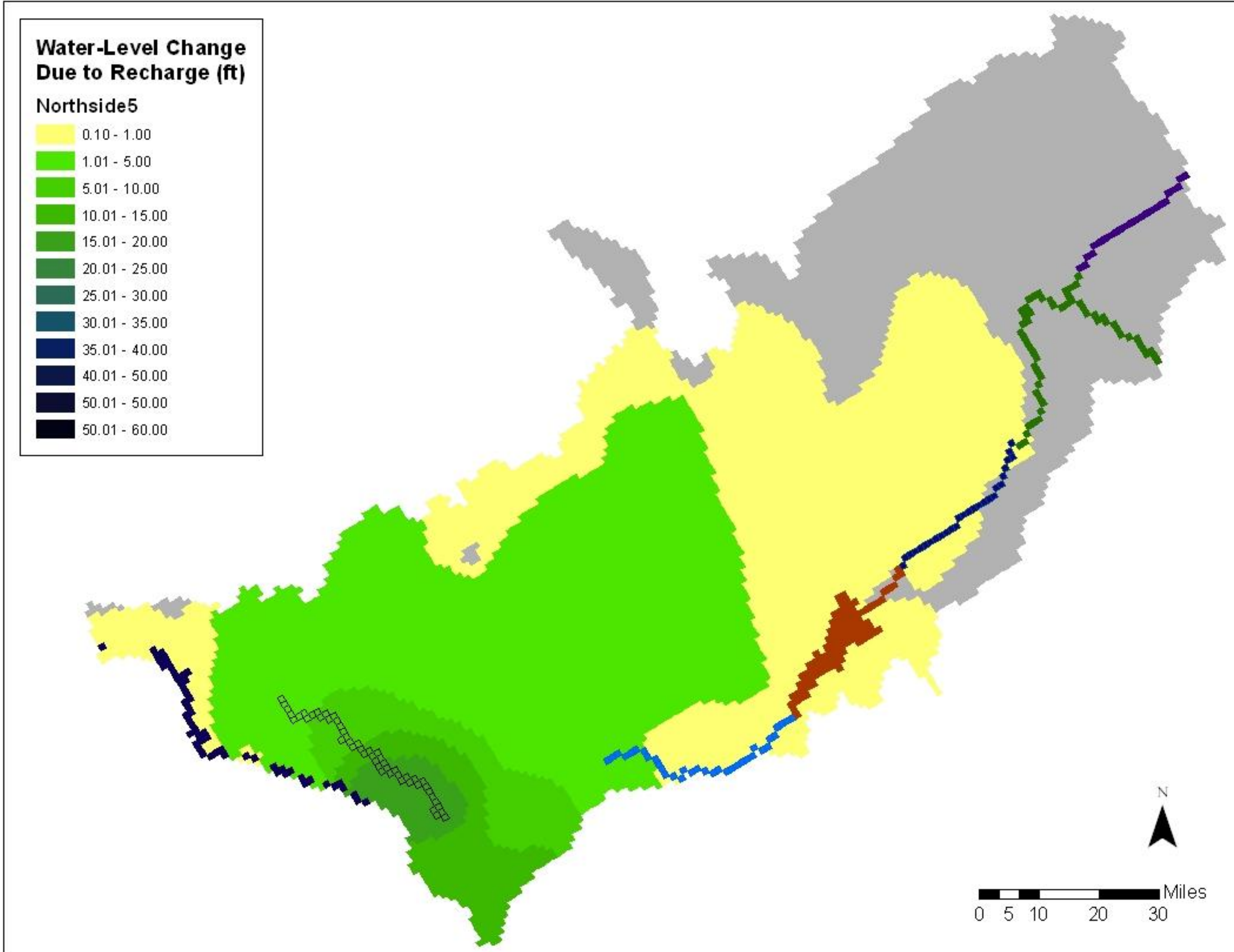

Water-Level Change Due to Recharge (ft)
Northside1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

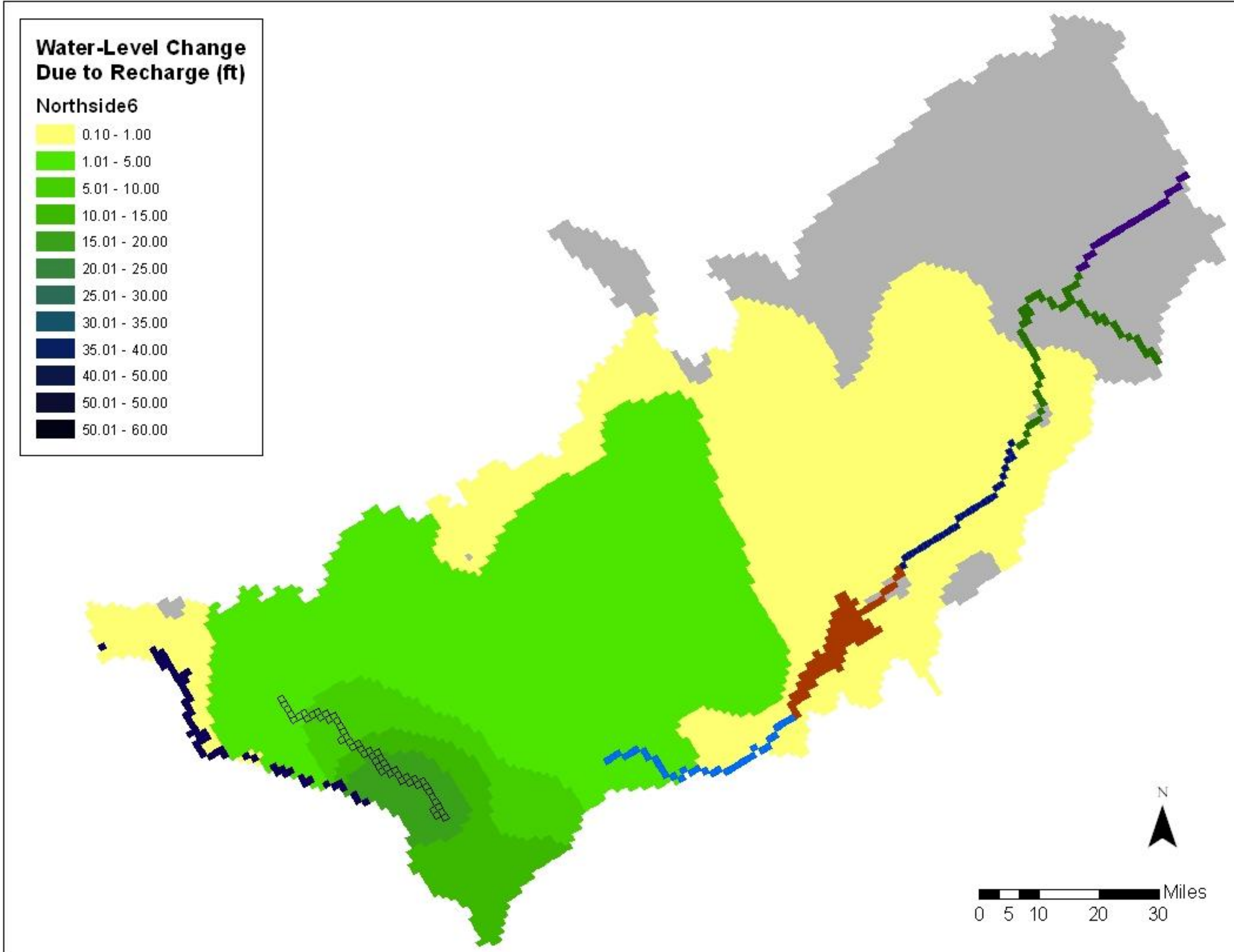


Water-Level Change Due to Recharge (ft)
Northside2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Northside3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Northside4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Northside5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Northside6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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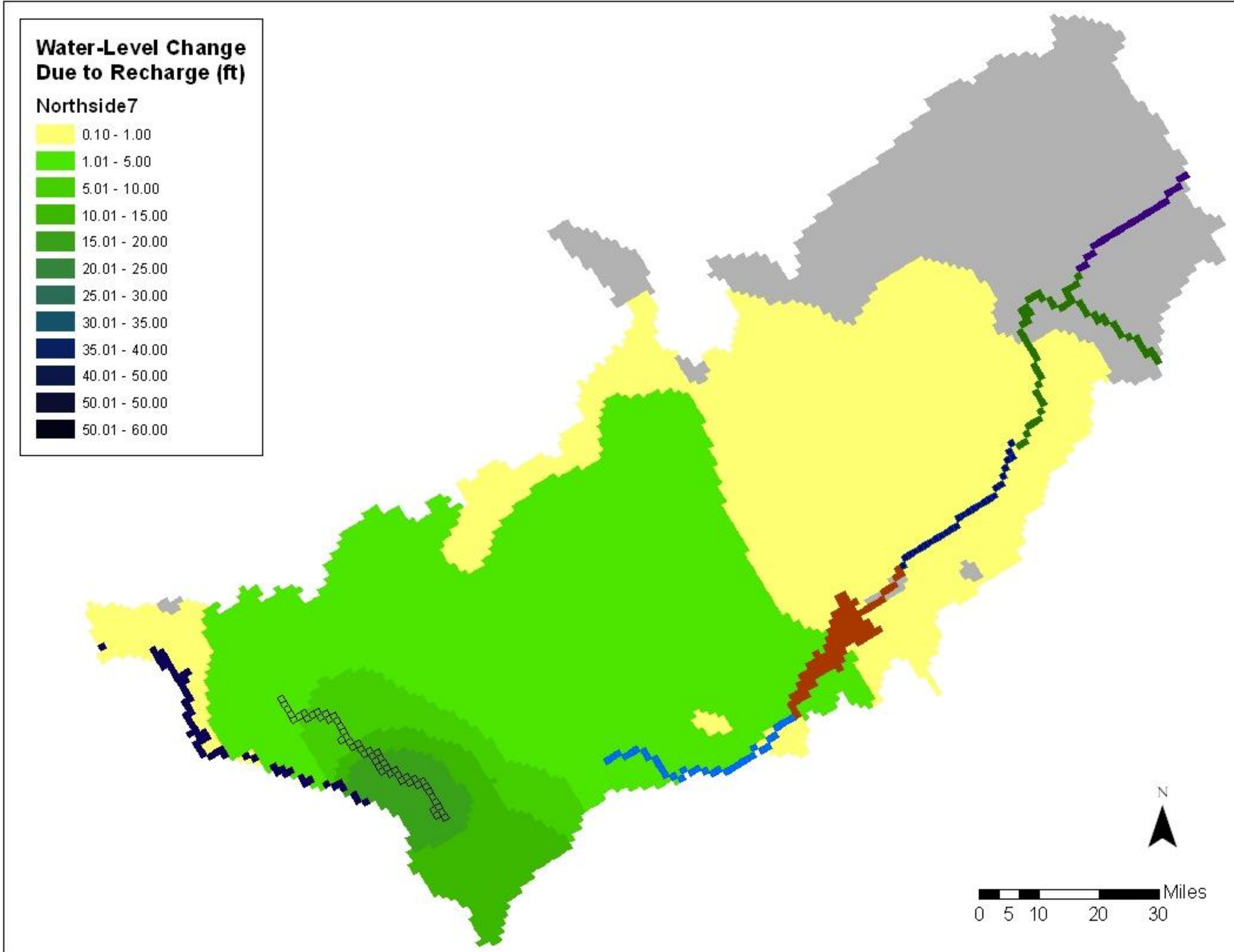
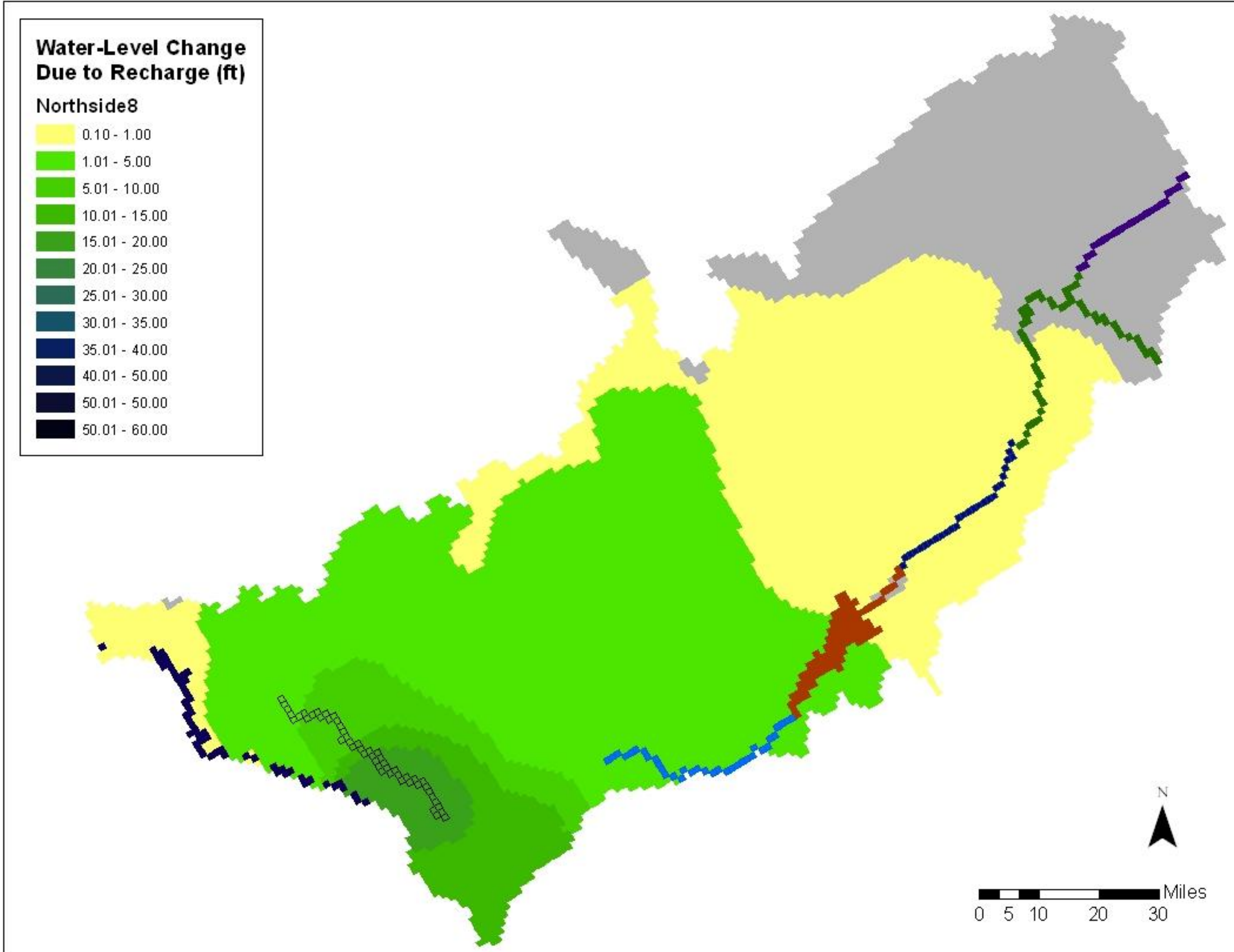
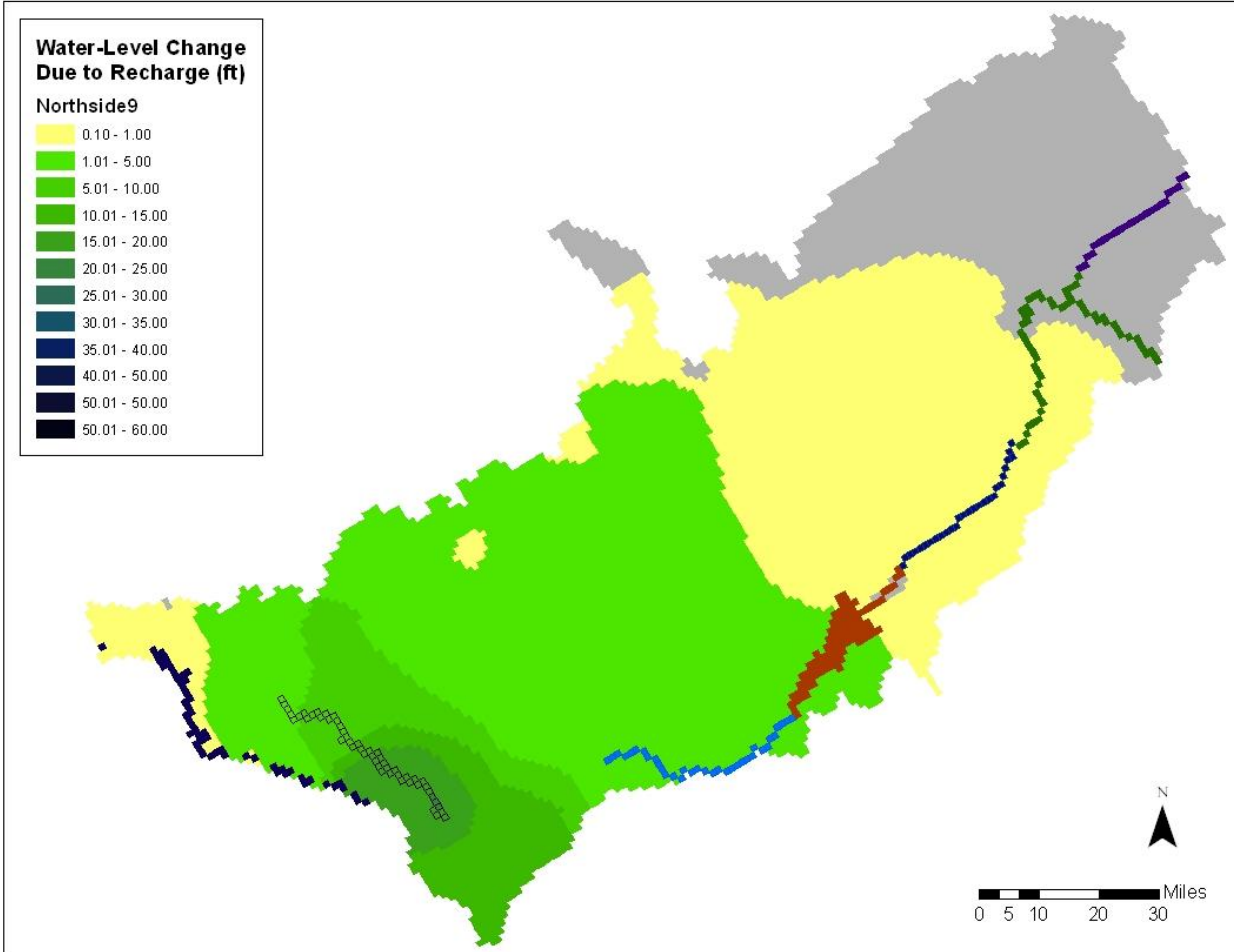
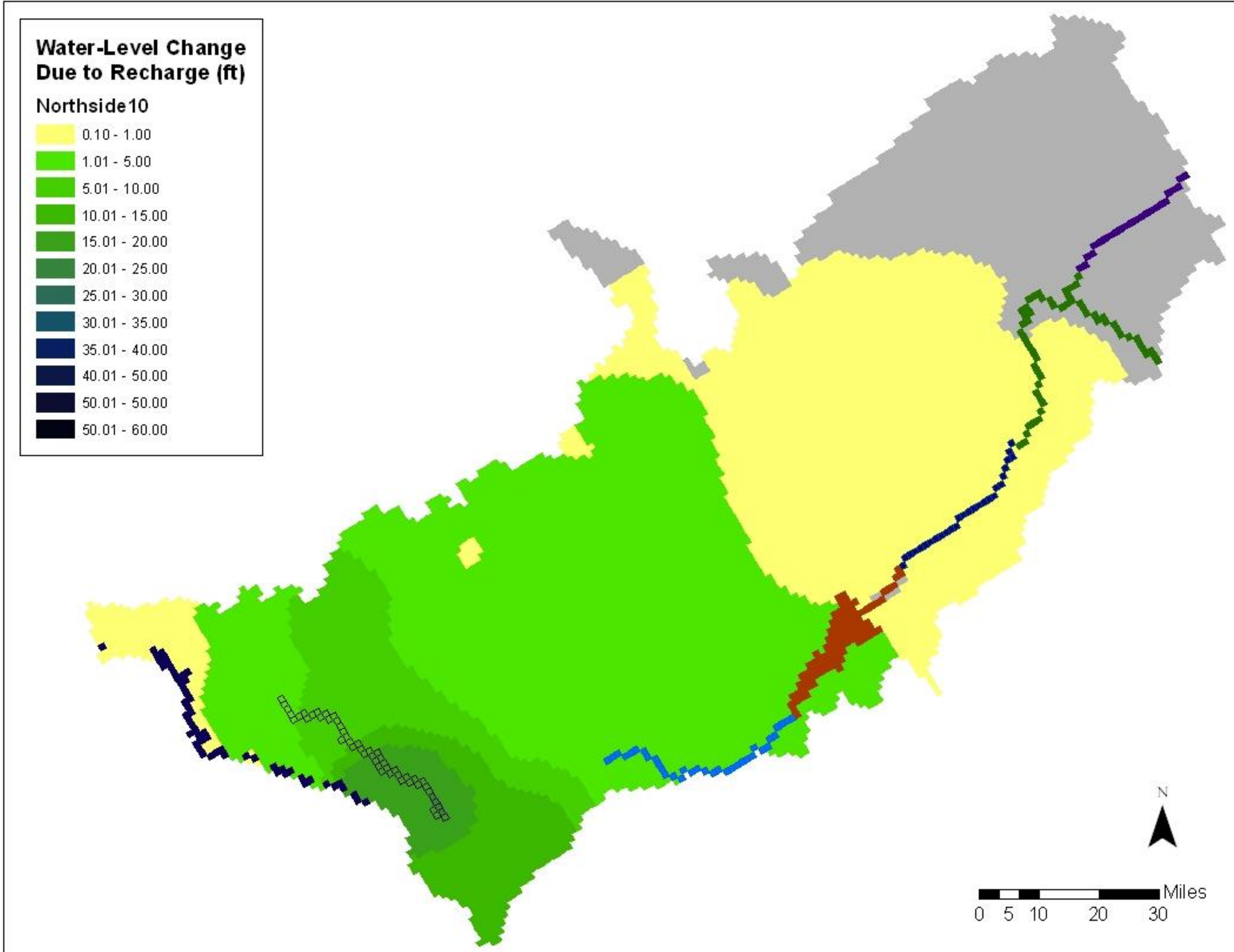
50.01 - 60.00
N
Miles
0 5 10 20 30

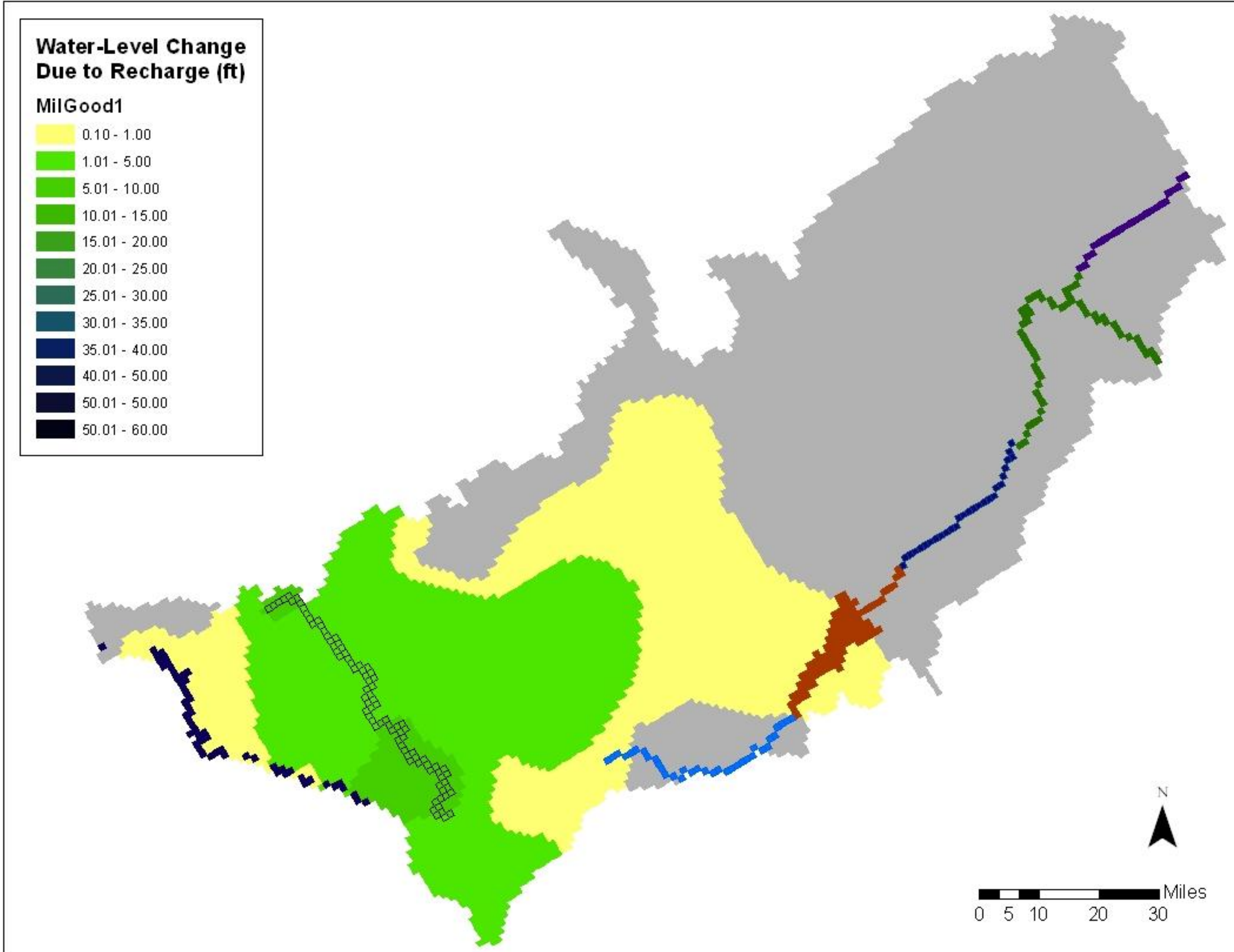


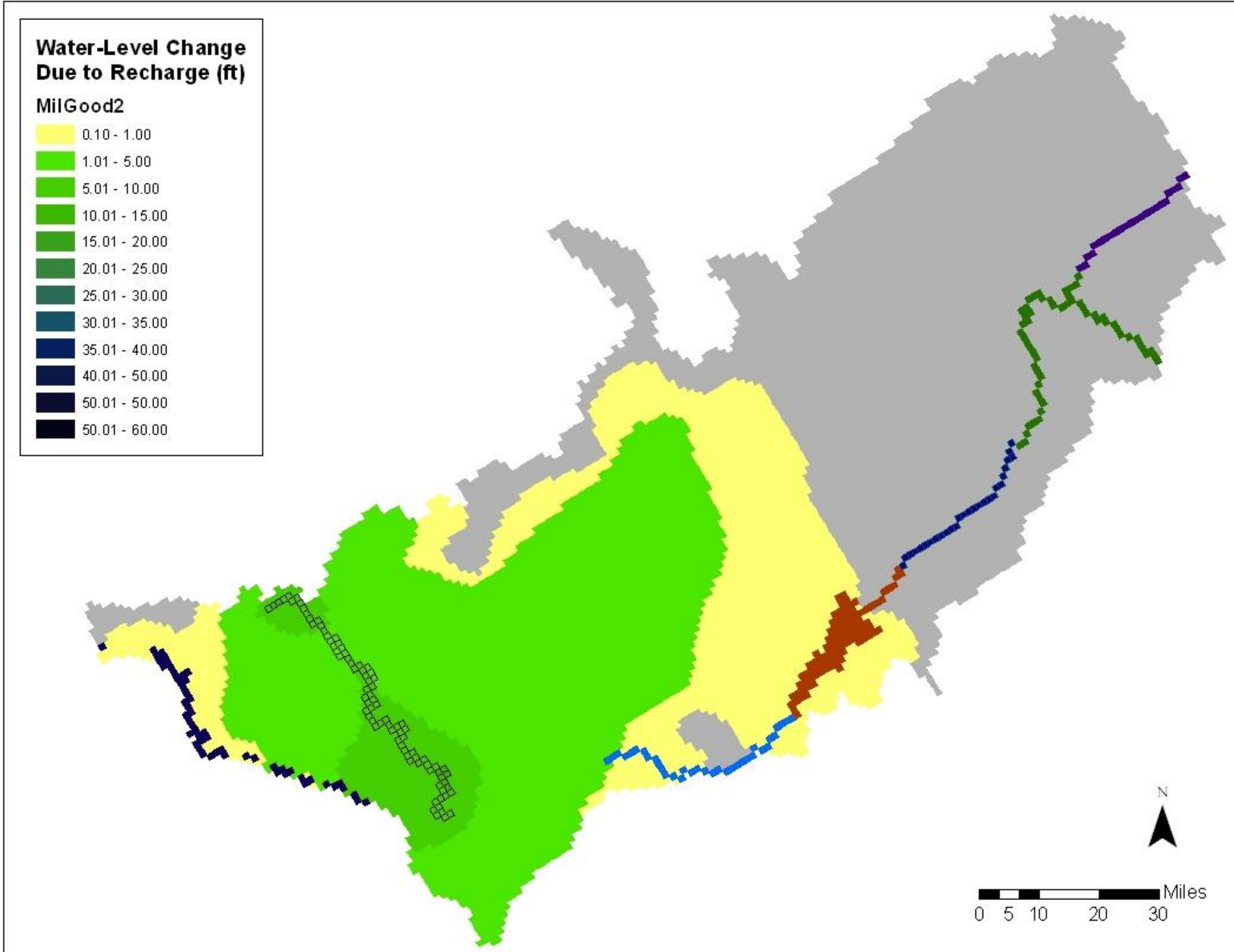
Water-Level Change
Due to Recharge (ft)
Northside7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0
5
10
20
30

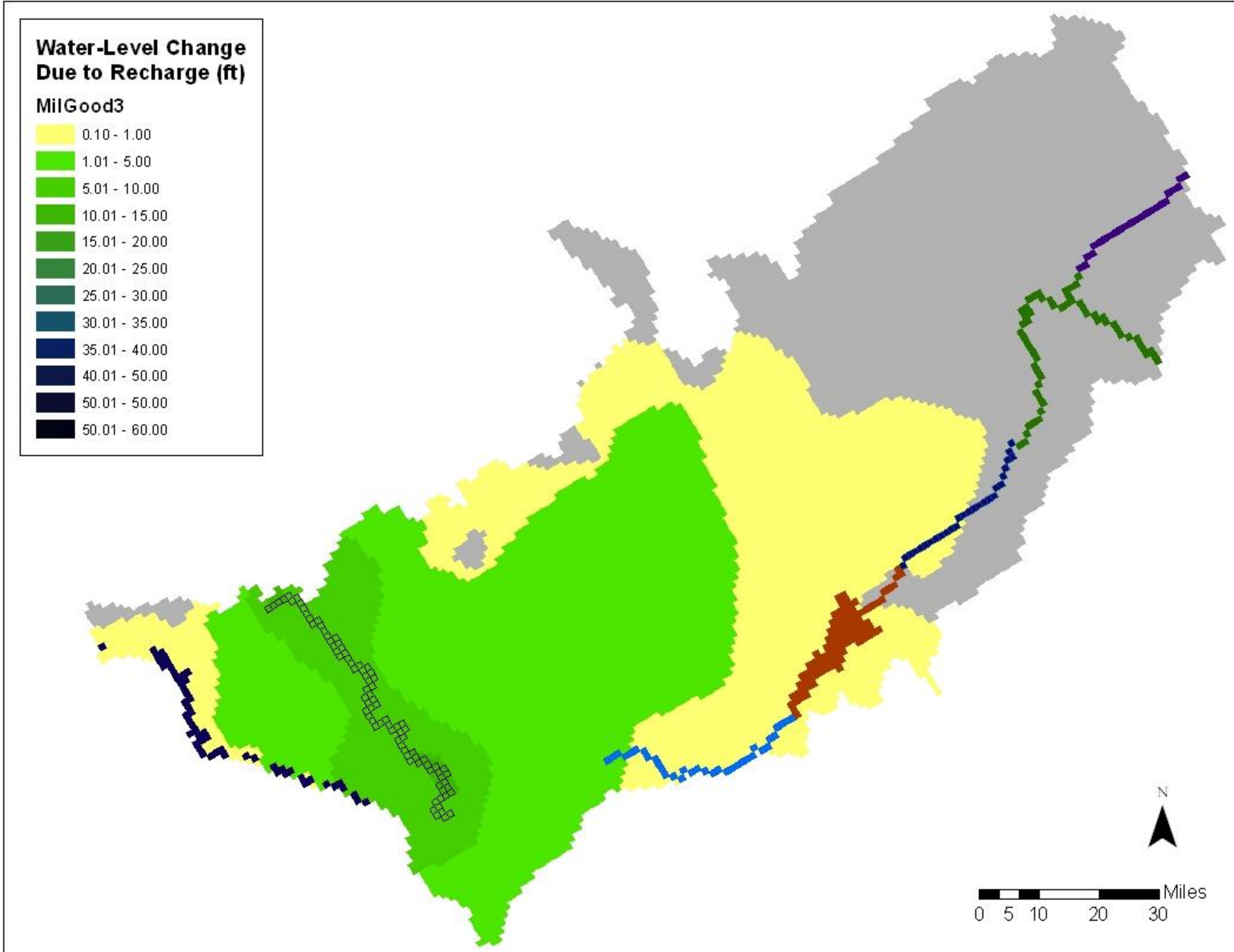

Water-Level Change Due to Recharge (ft)
Northside8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

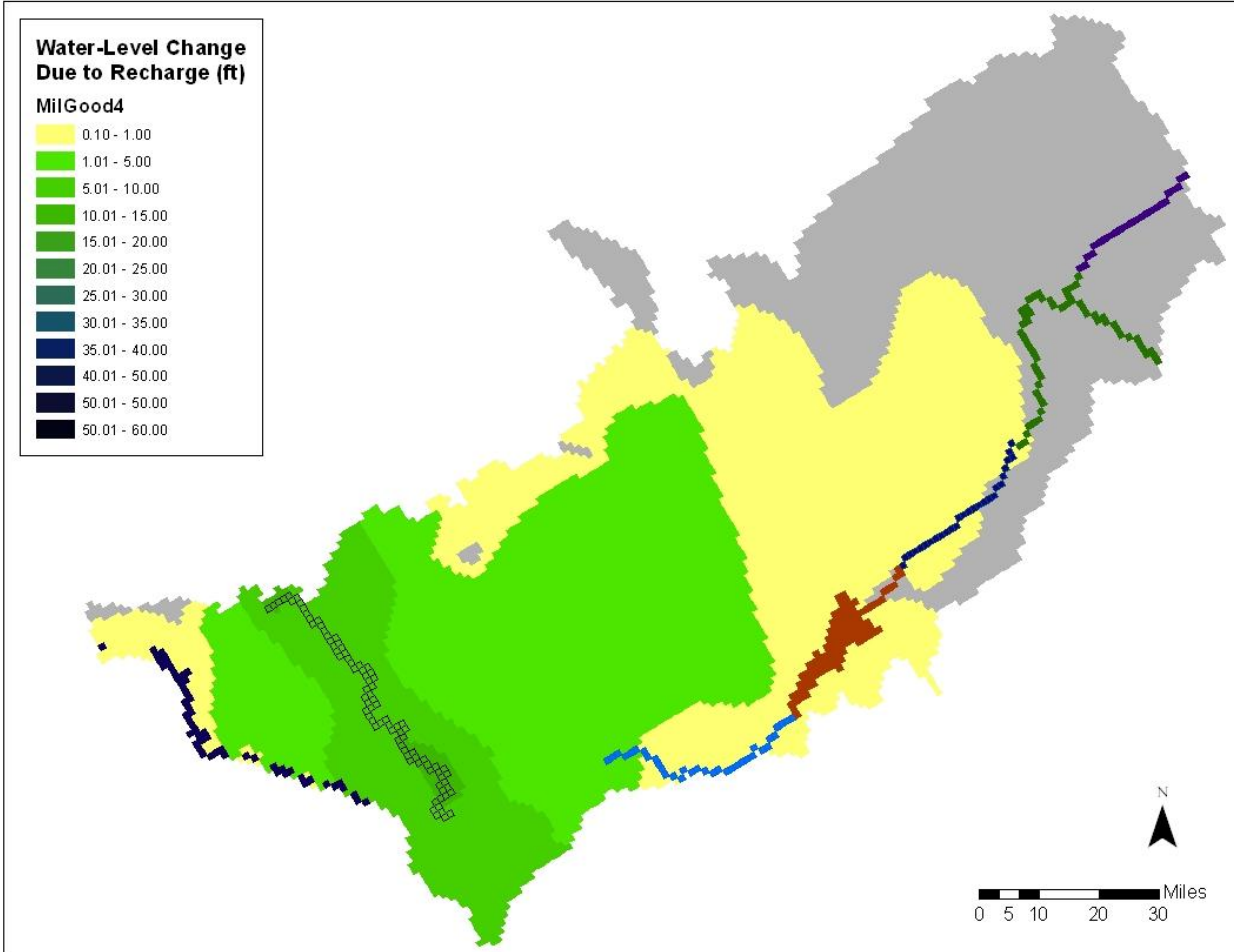

Water-Level Change Due to Recharge (ft)
Northside9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

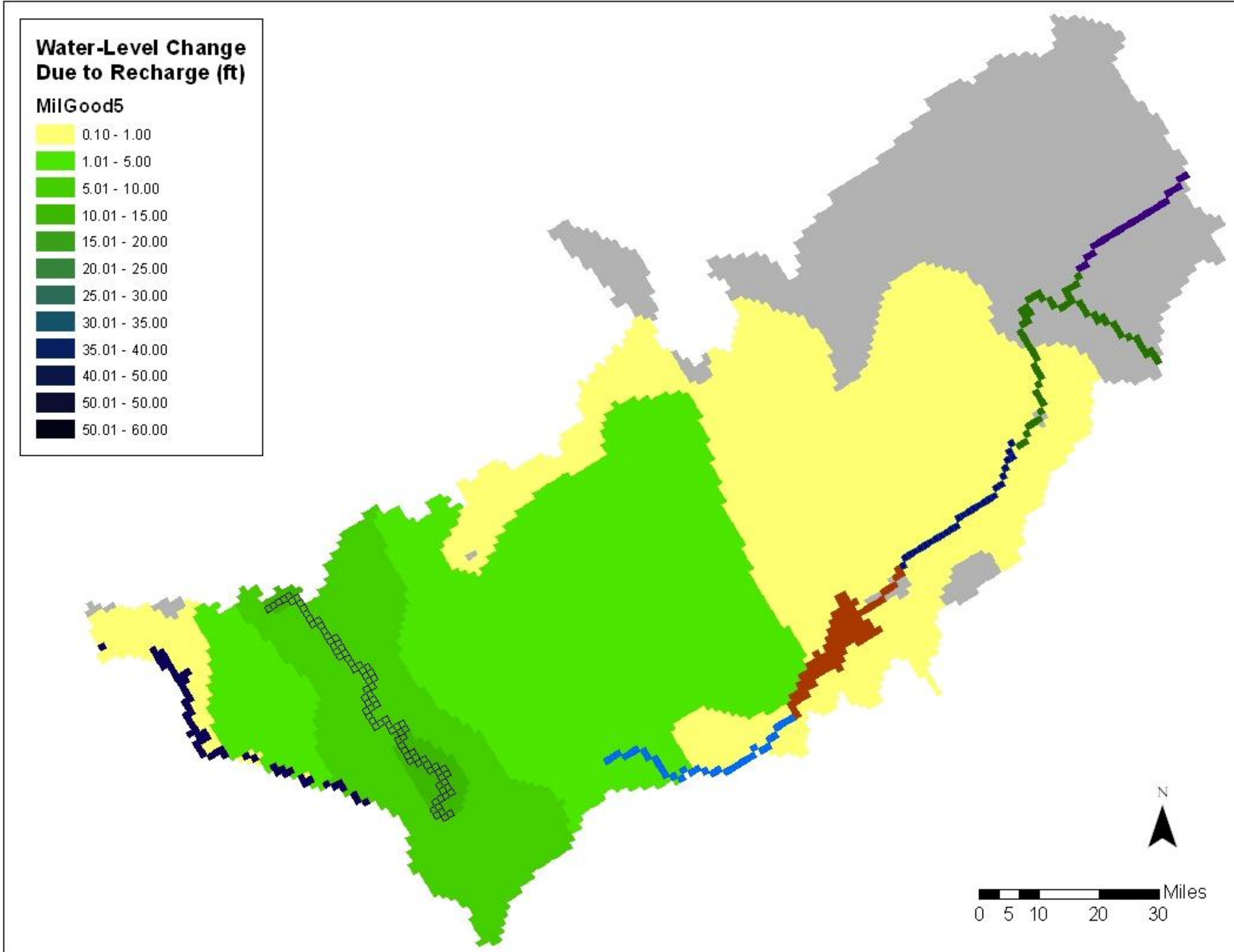

Water-Level Change
Due to Recharge (ft)
Northside10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

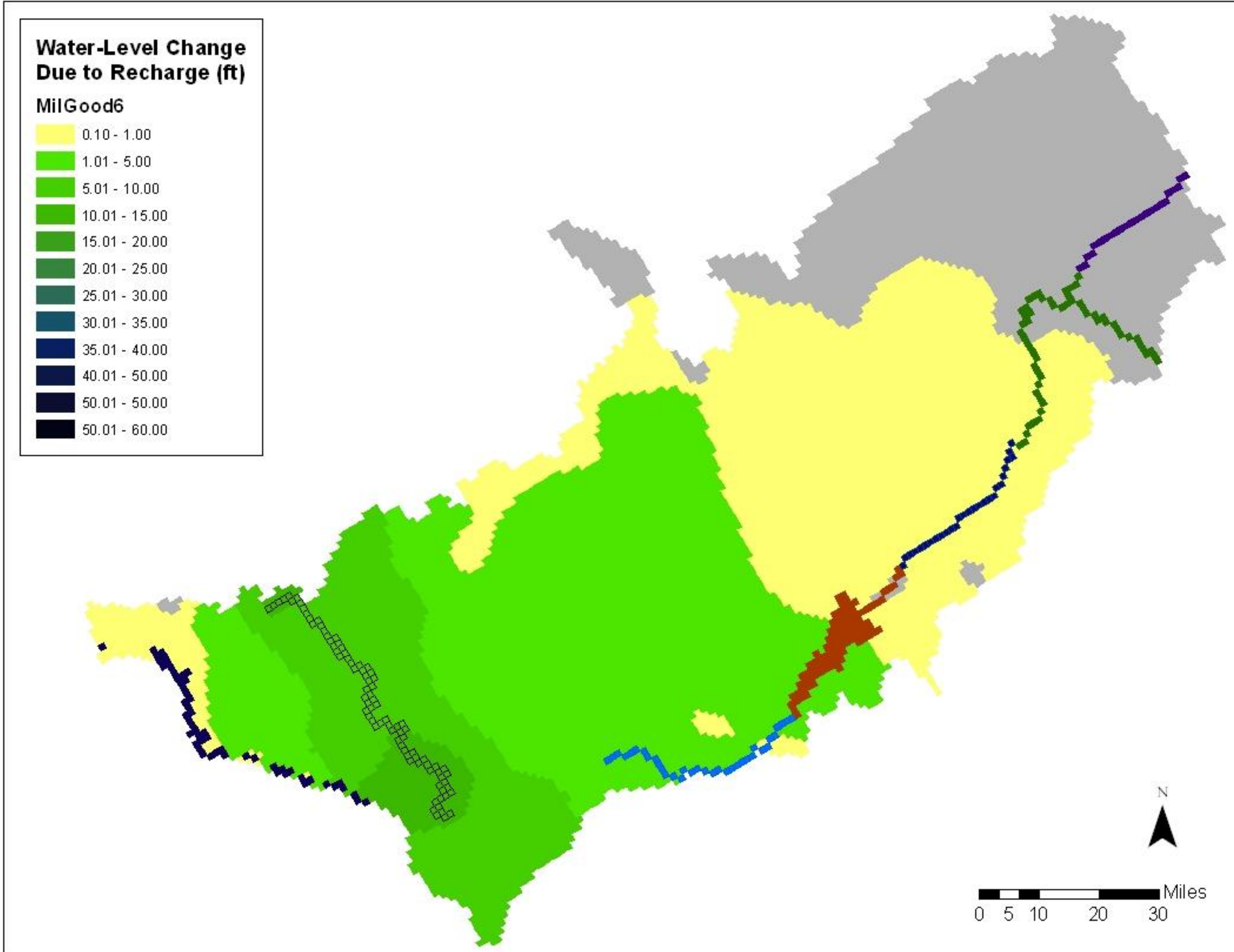

Water-Level Change
Due to Recharge (ft)
MilGood1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

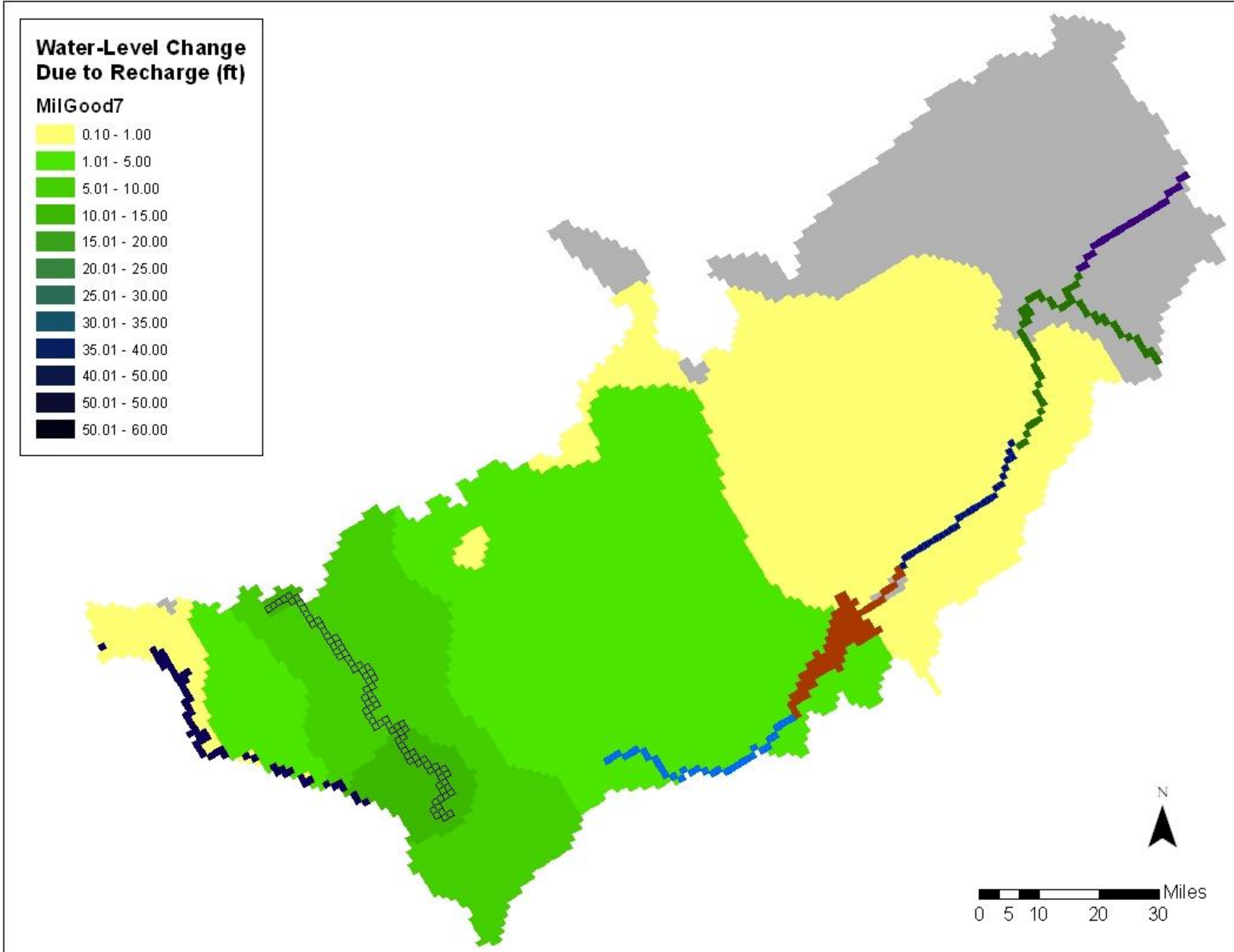

Water-Level Change
Due to Recharge (ft)
MilGood2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

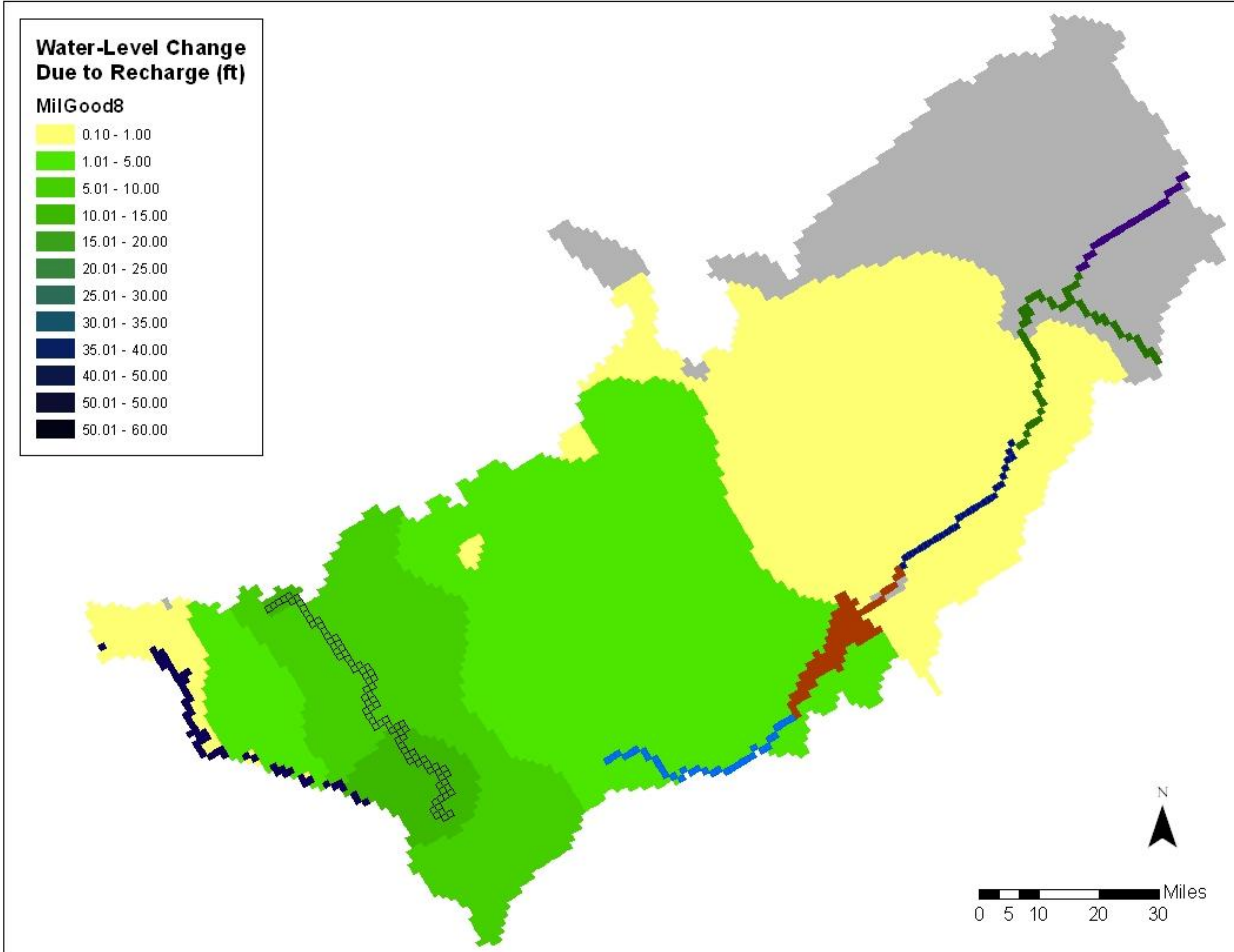

Water-Level Change Due to Recharge (ft)
MilGood3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
MilGood4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
MilGood5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
MilGood6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
MilGood7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
MilGood8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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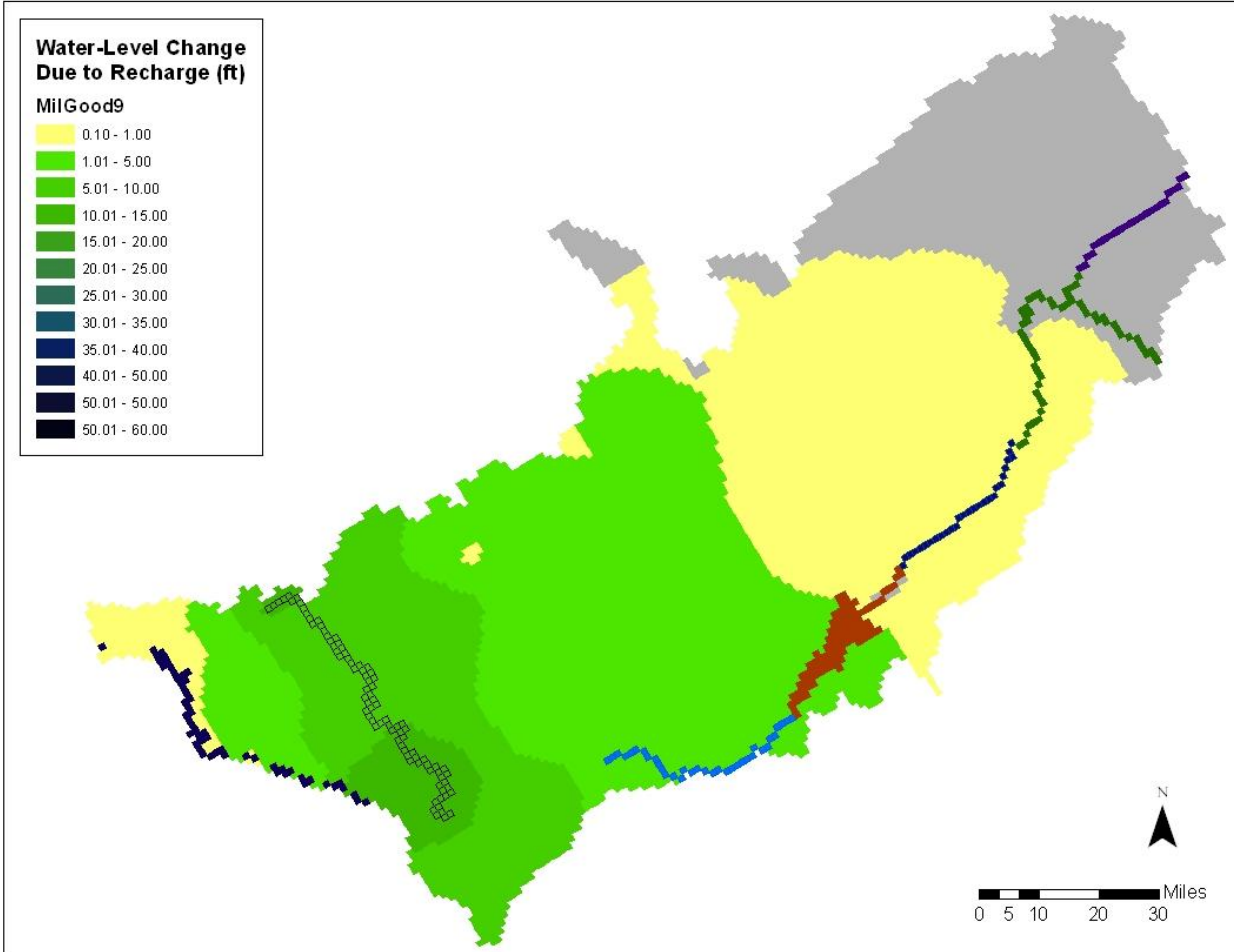
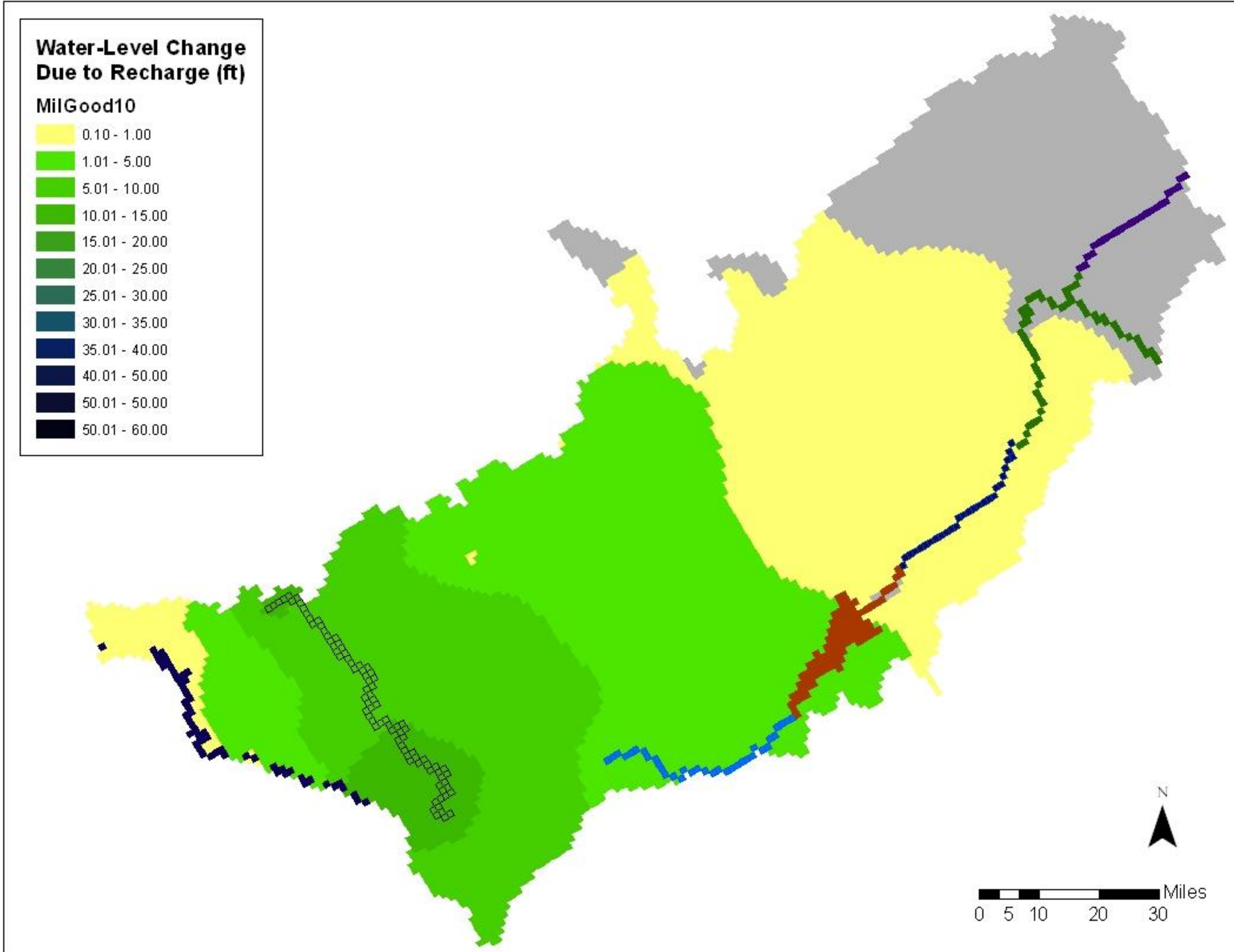
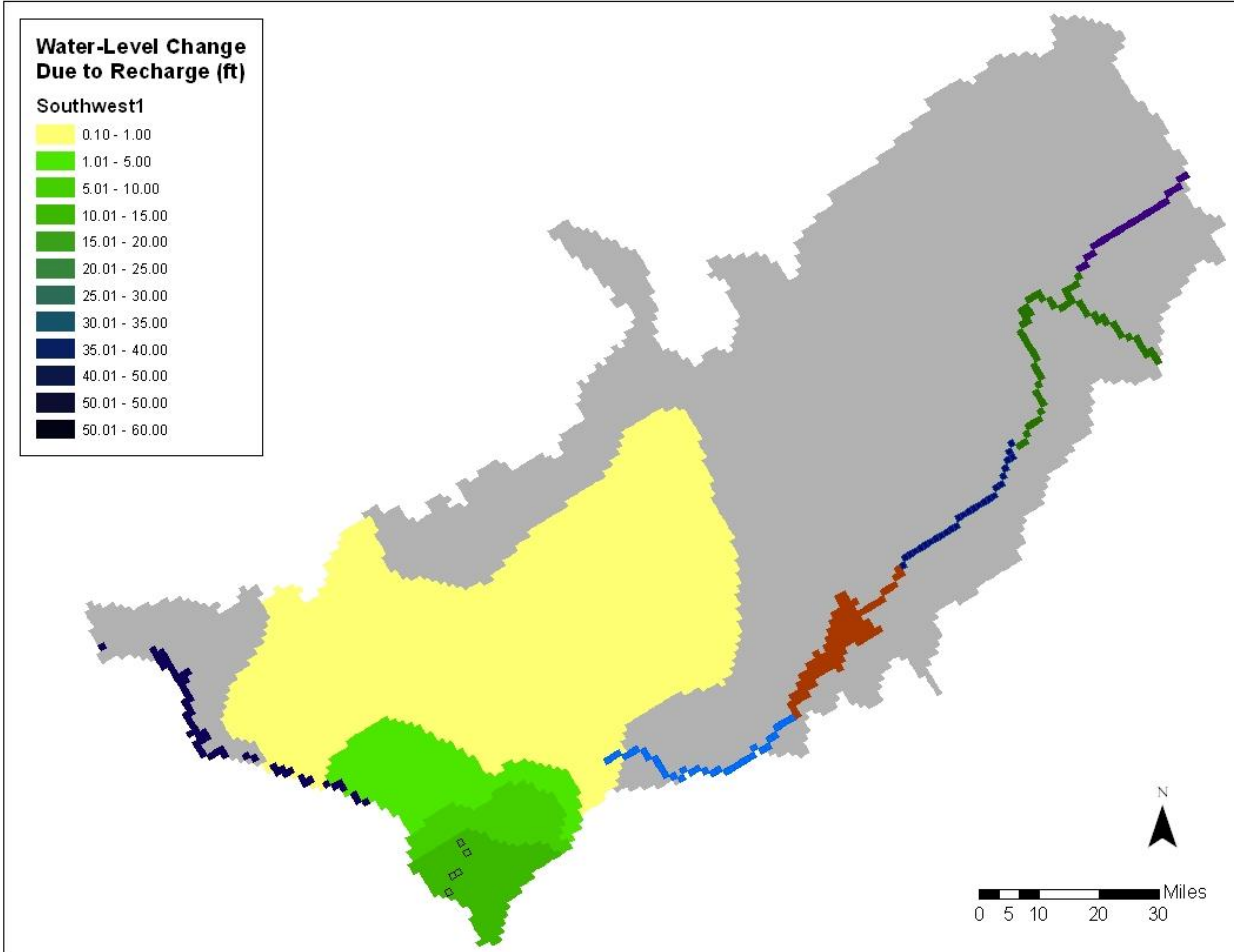
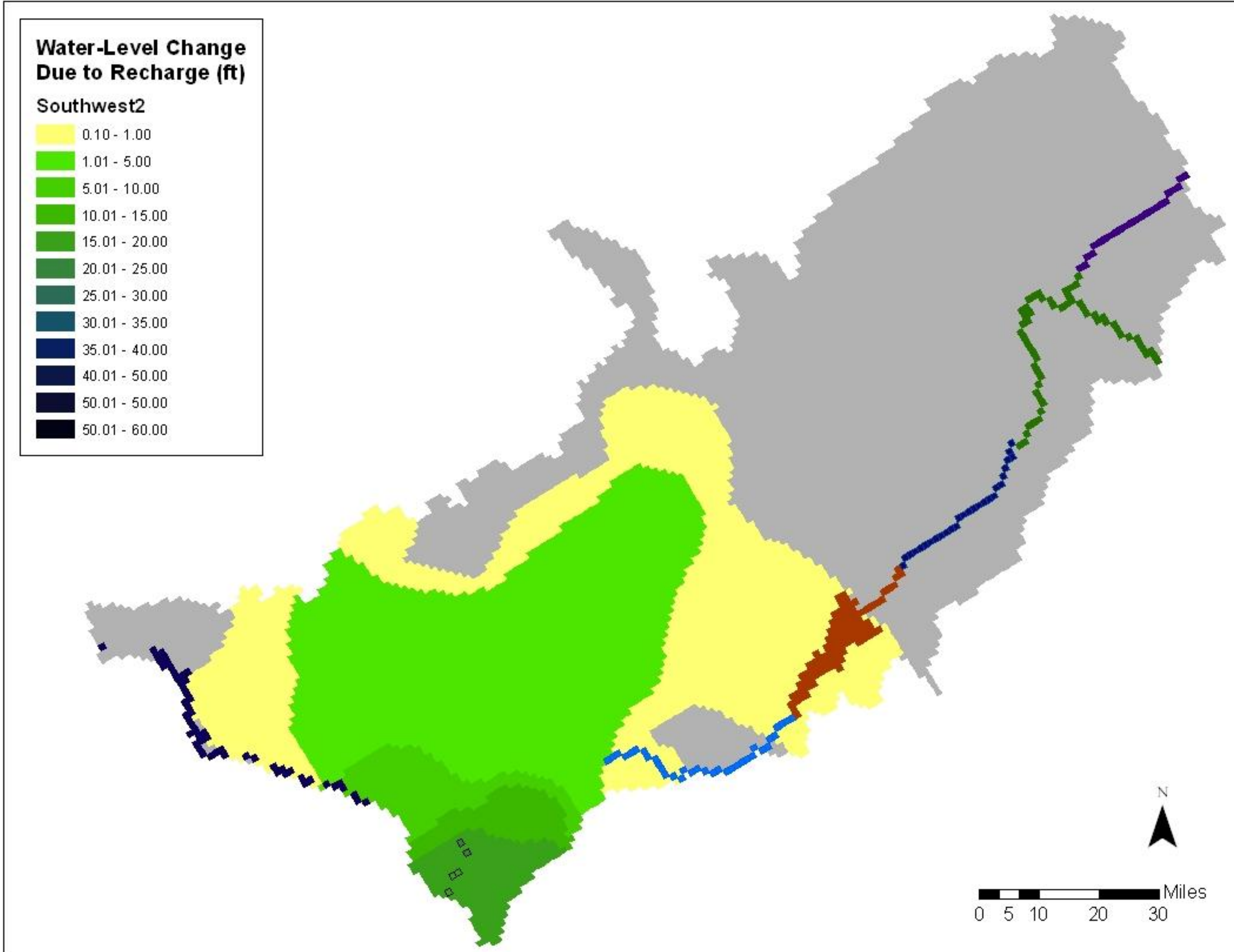
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
MilGood9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
MilGood10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Southwest1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Southwest2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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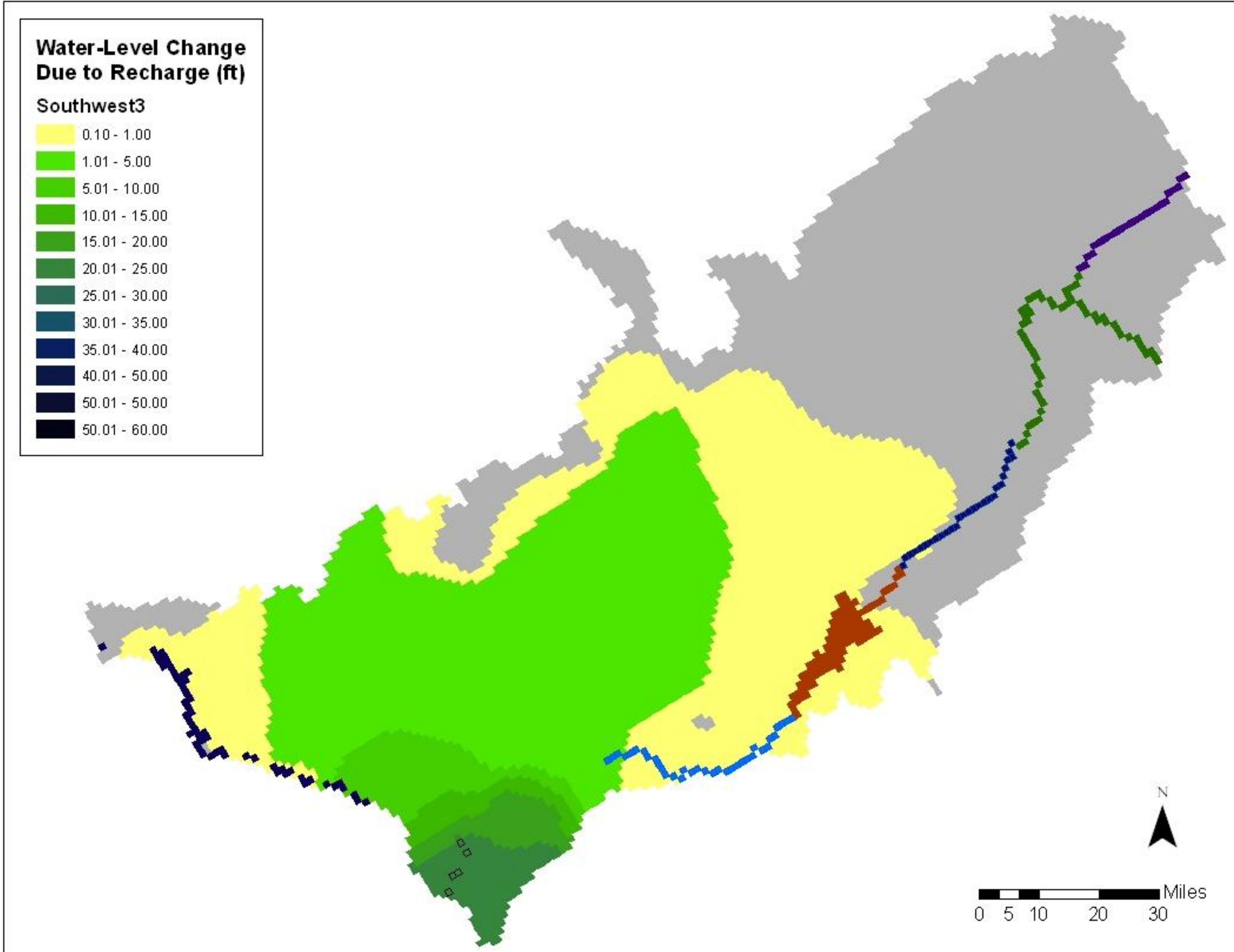
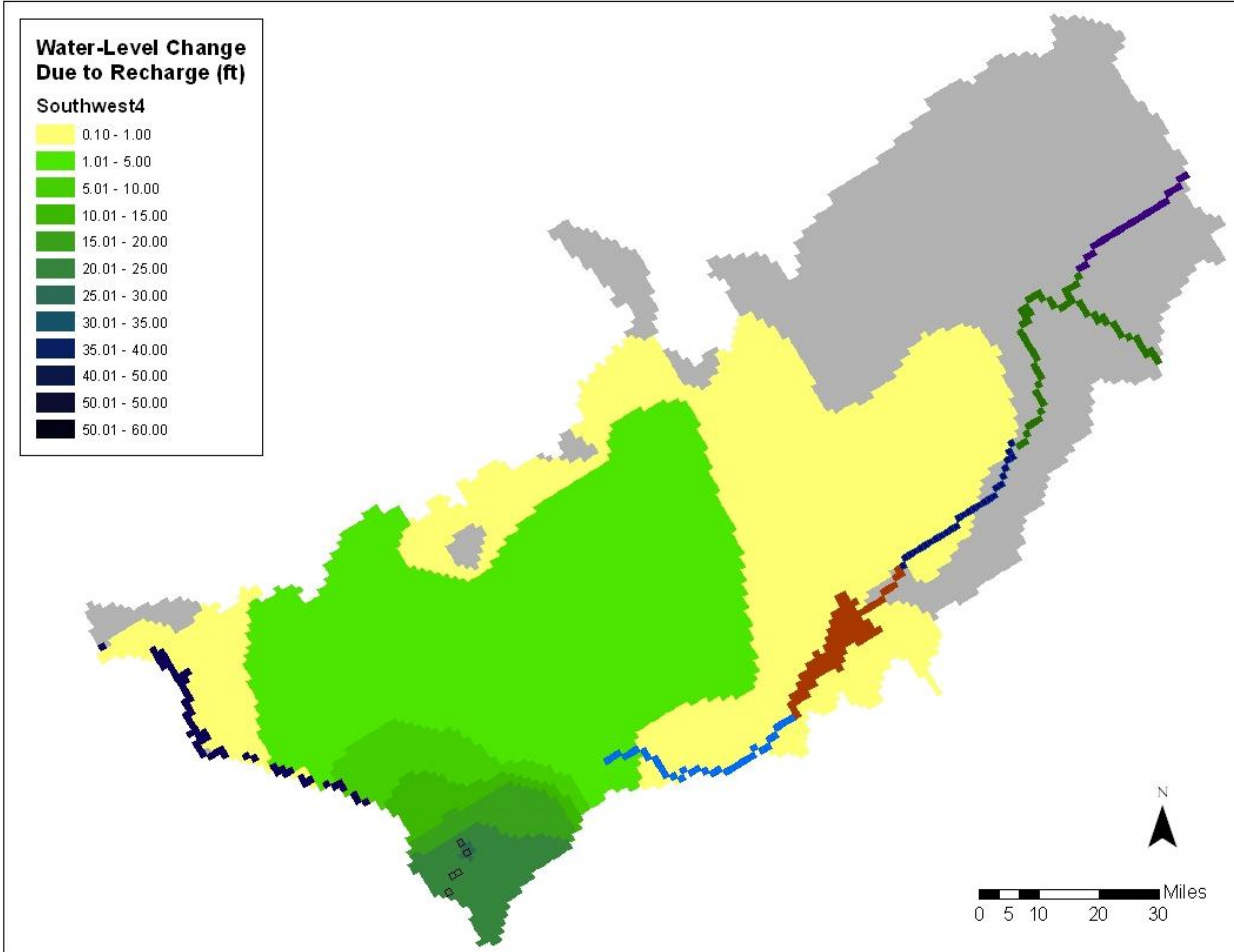
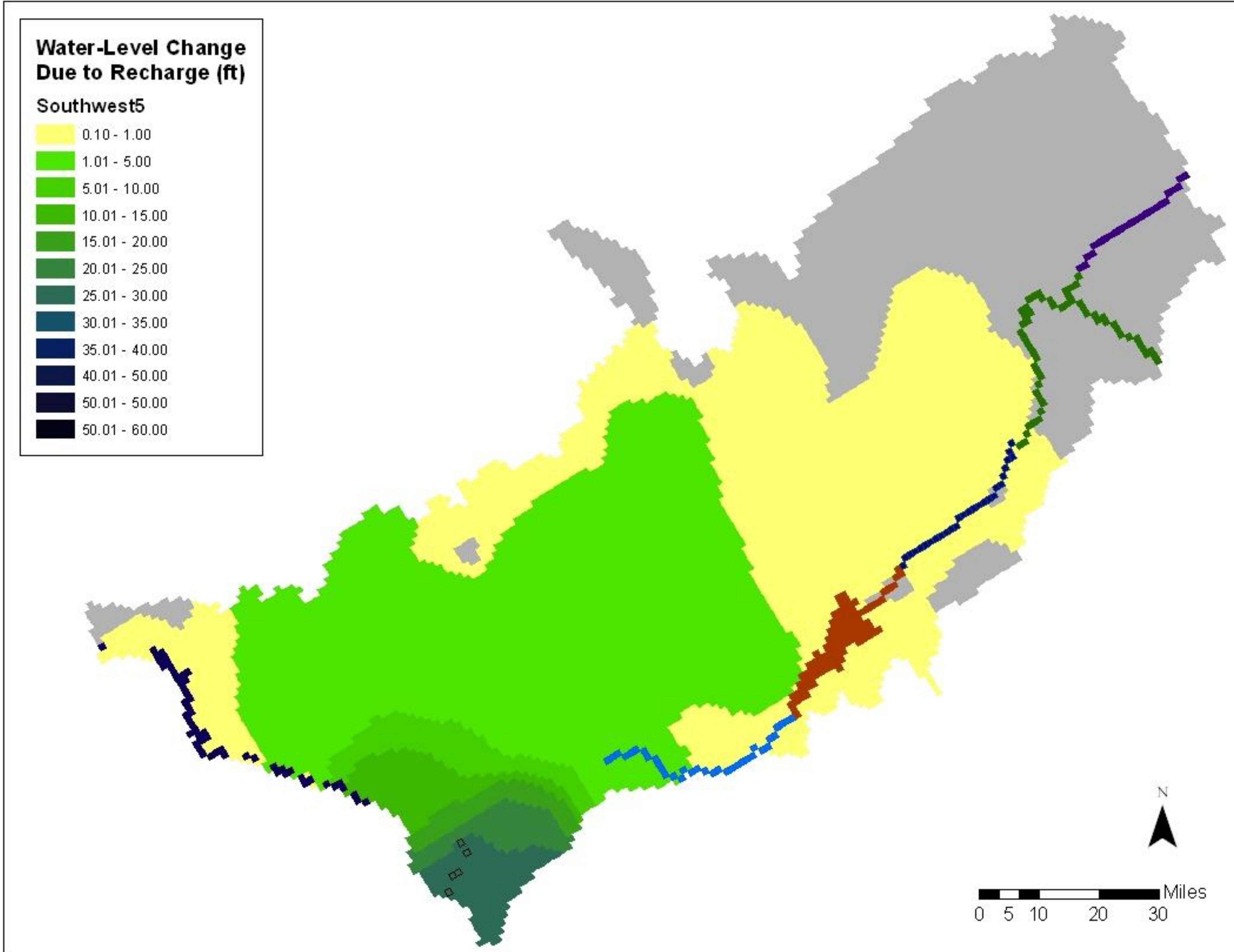
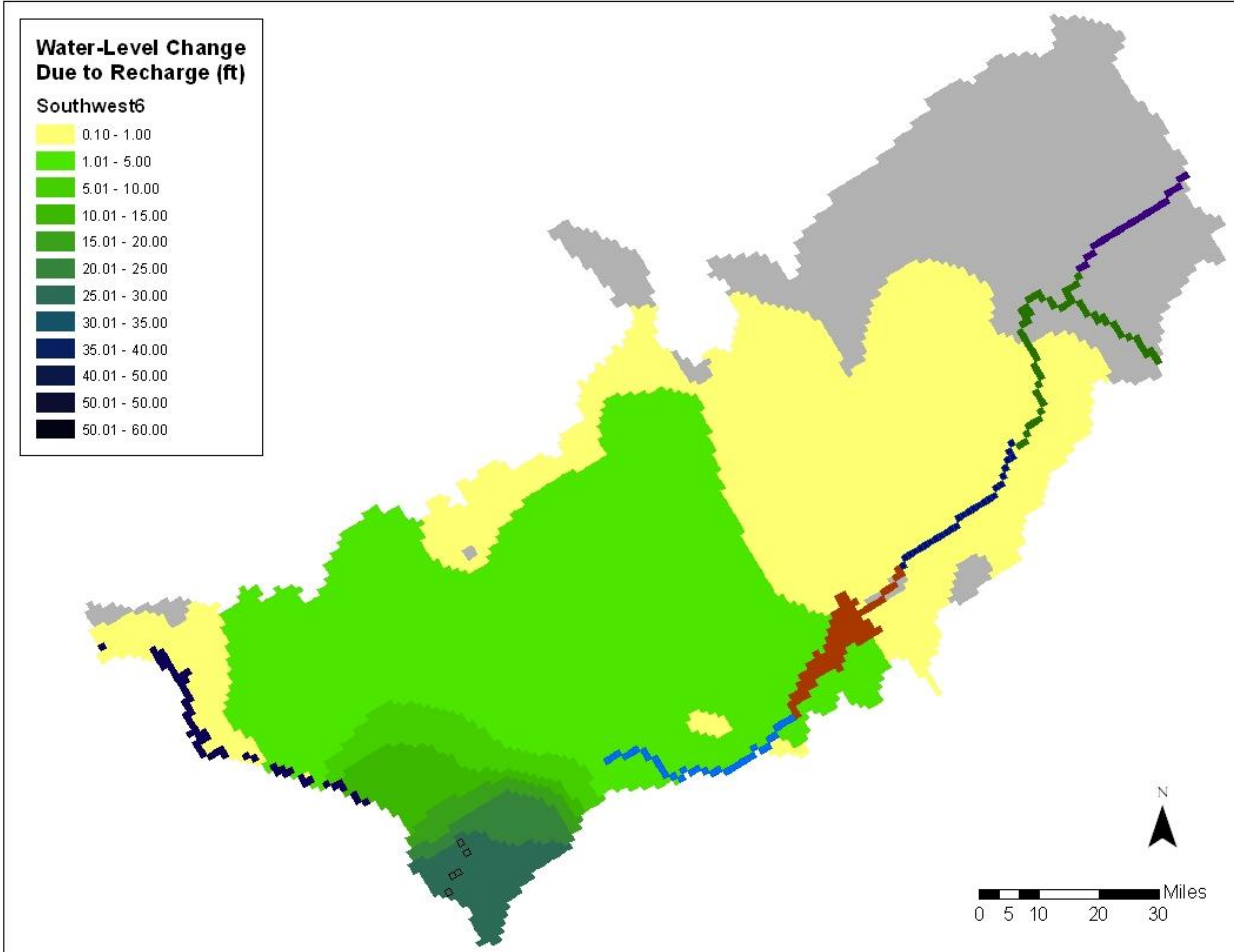
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Southwest3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0
5
10
20
30


Water-Level Change Due to Recharge (ft)
Southwest4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Southwest5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Southwest6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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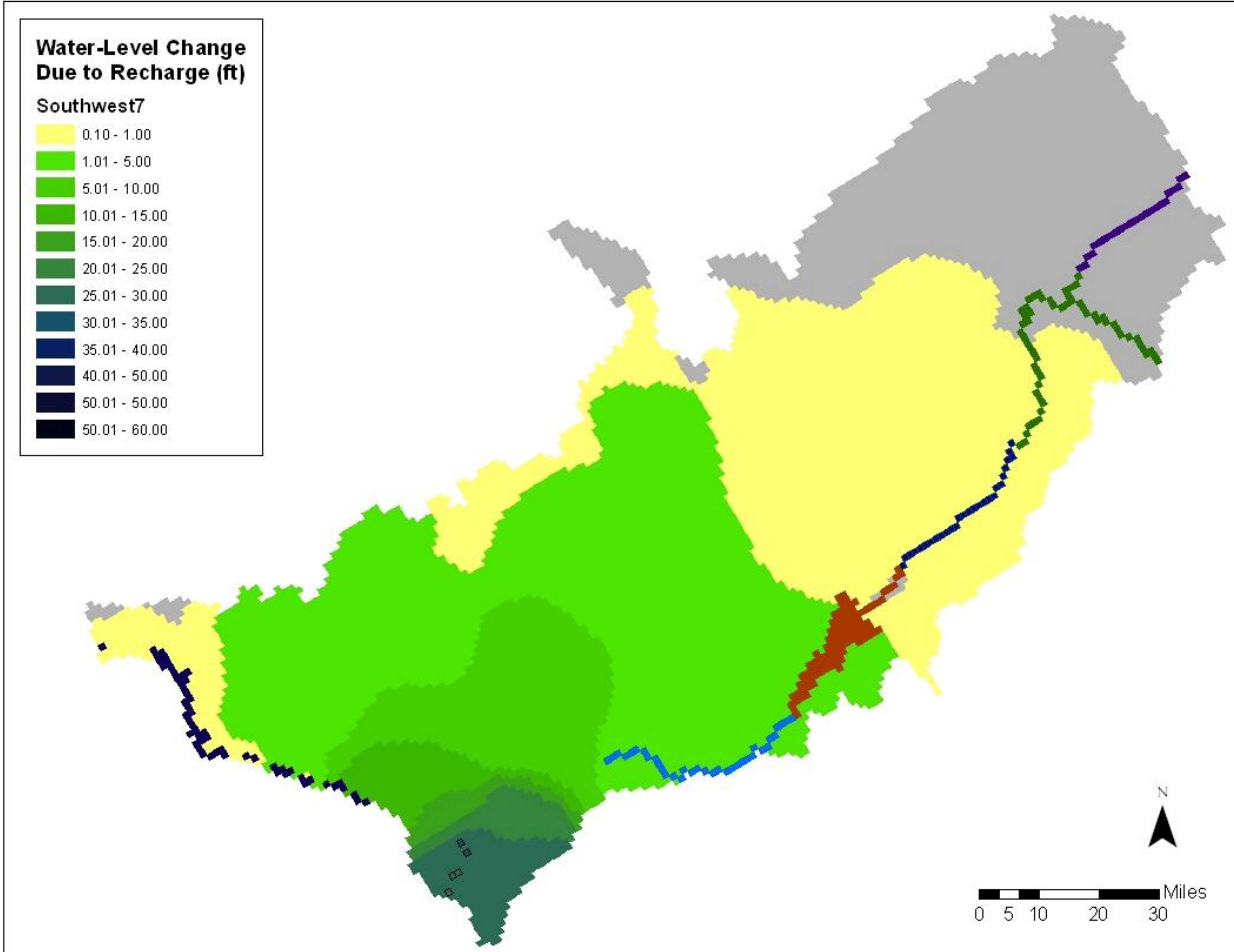
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Southwest7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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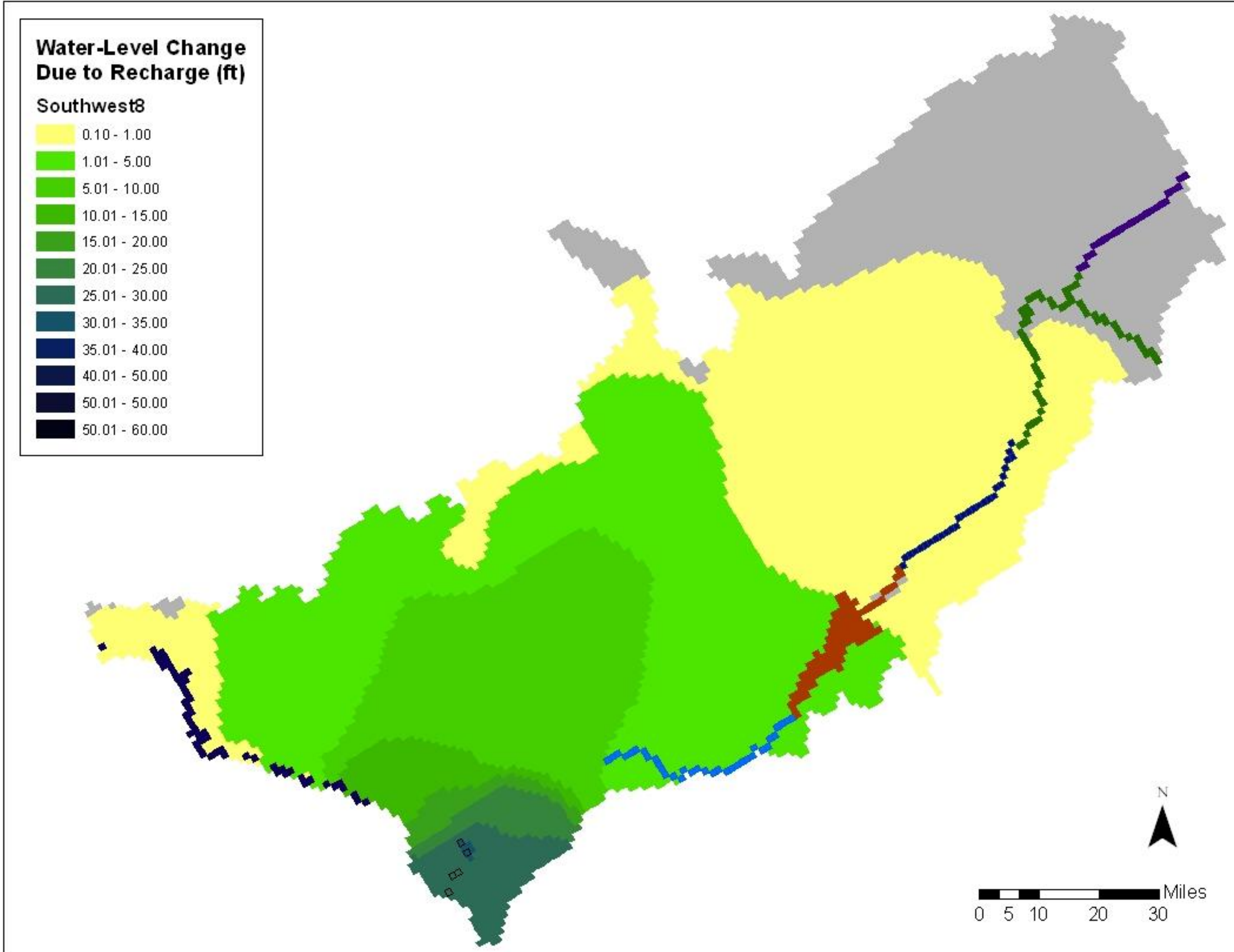
Miles
0
5
10
20
30


Water-Level Change Due to Recharge (ft)
Southwest8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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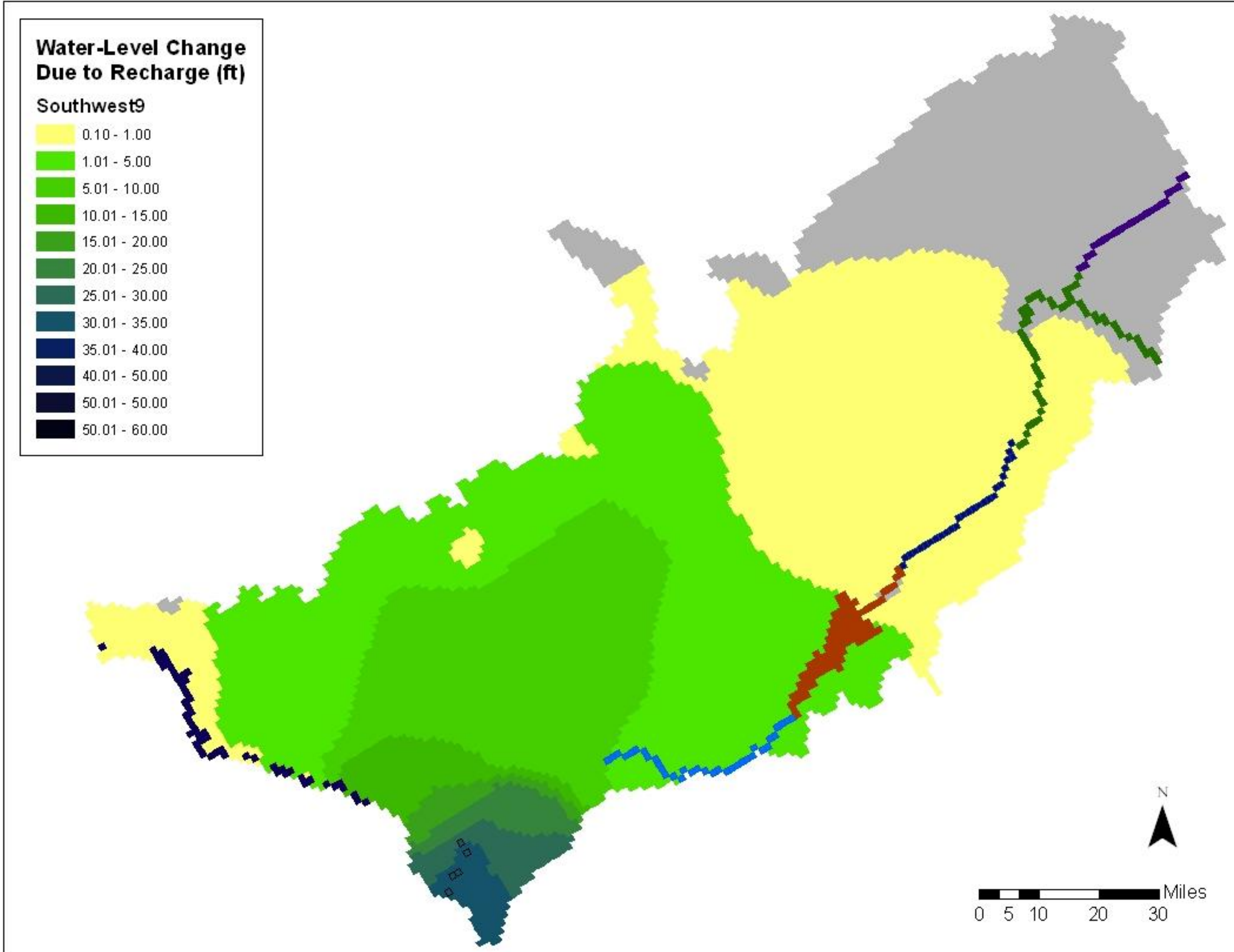
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
Southwest9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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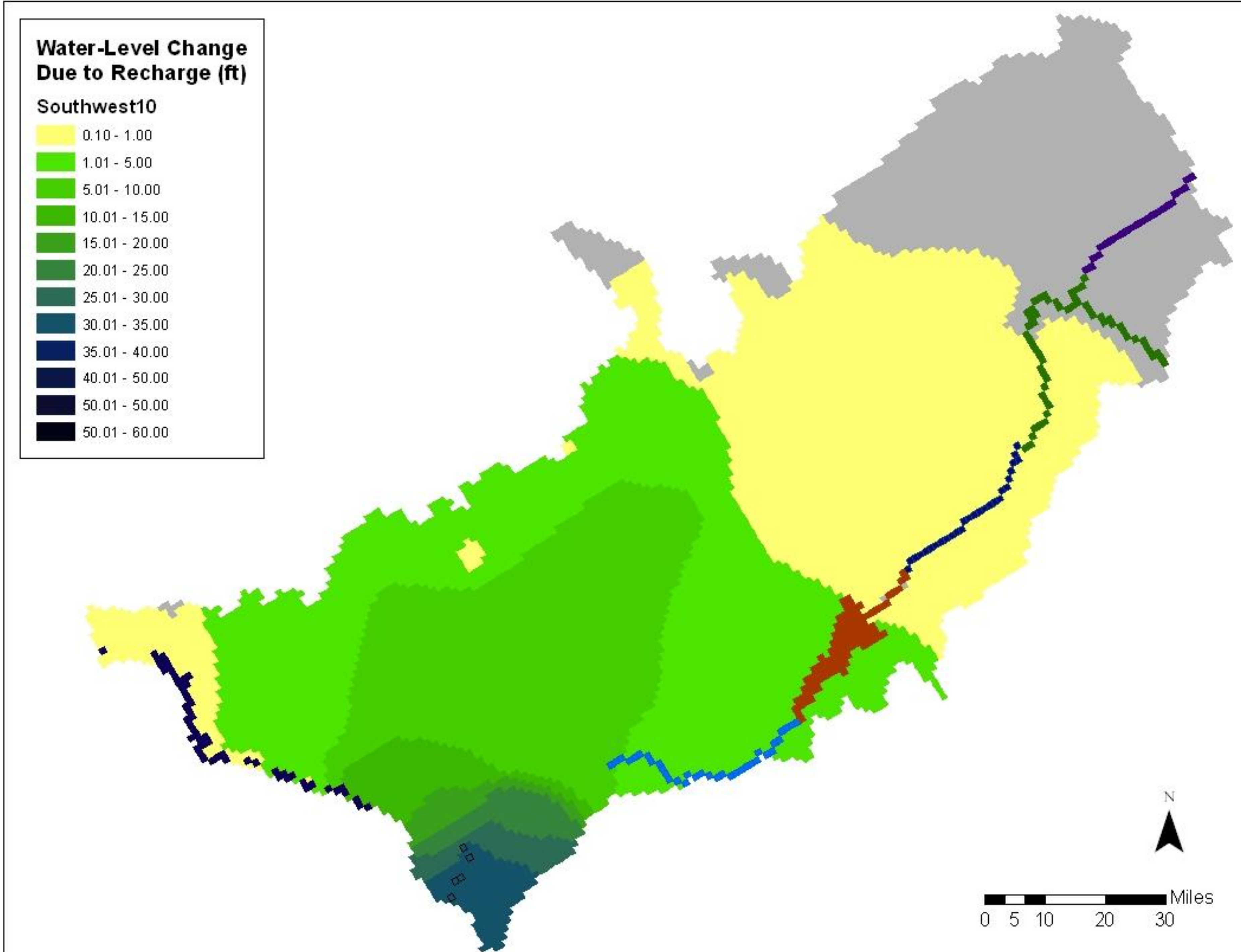
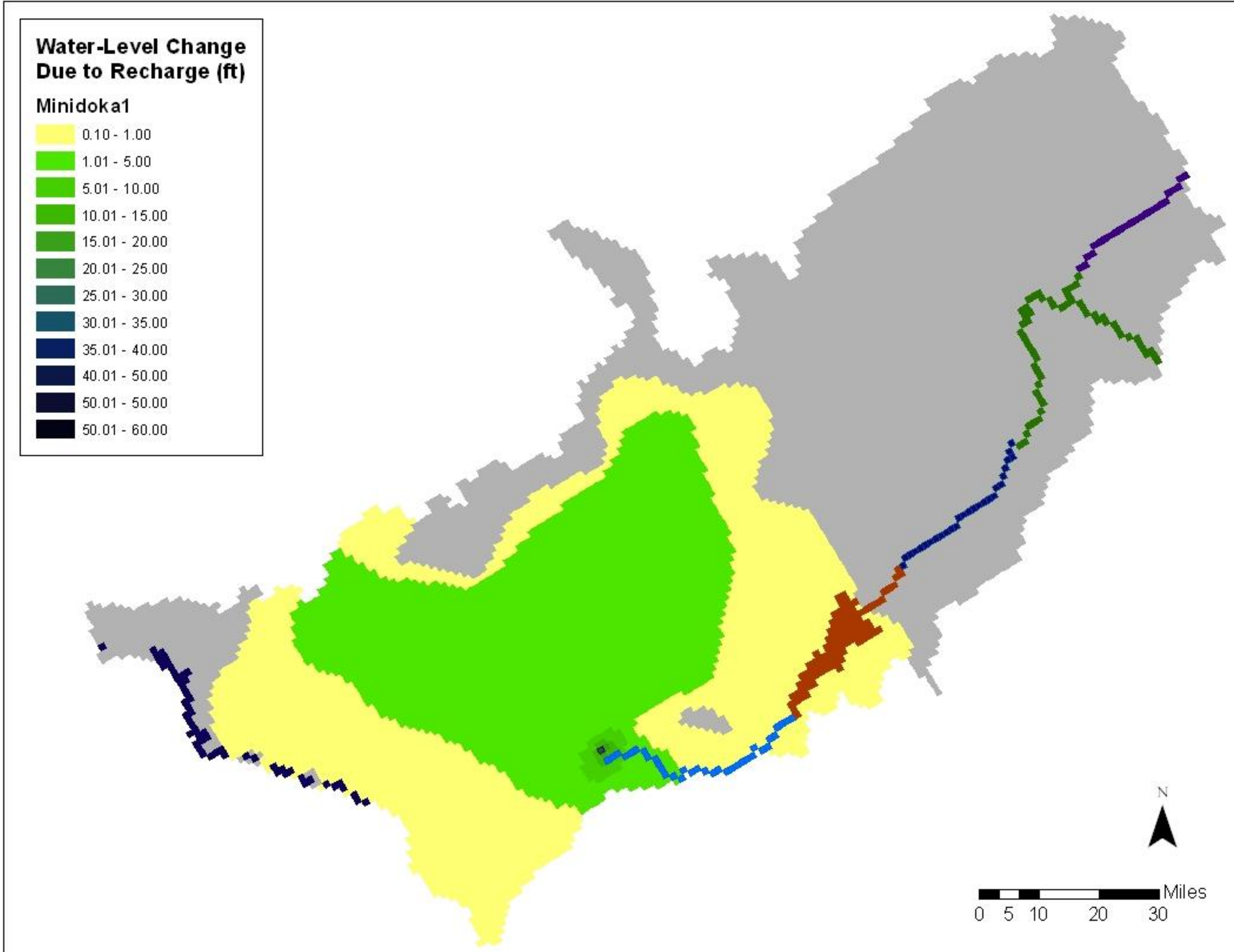
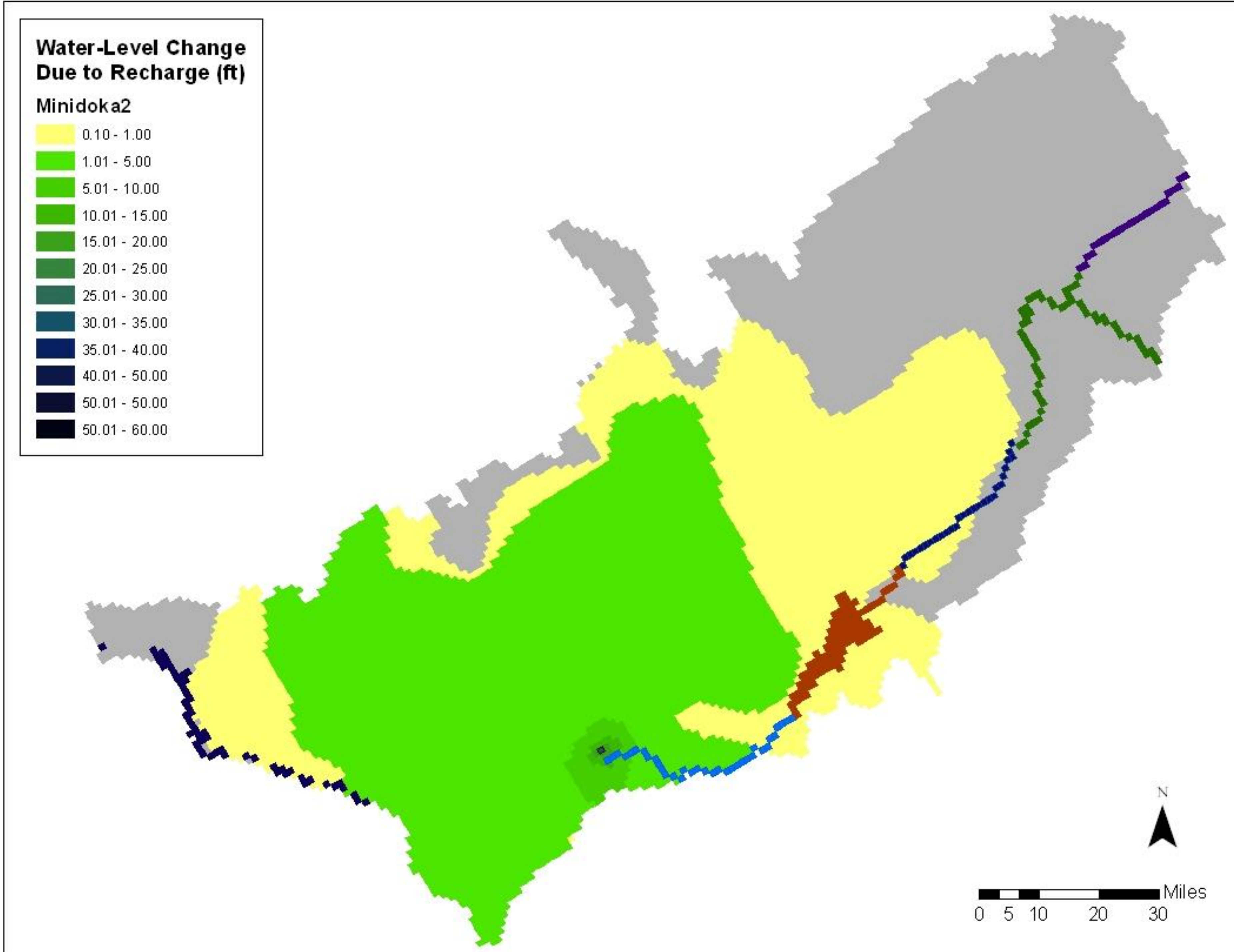
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Southwest10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Minidoka1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Minidoka2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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35.01 - 40.00
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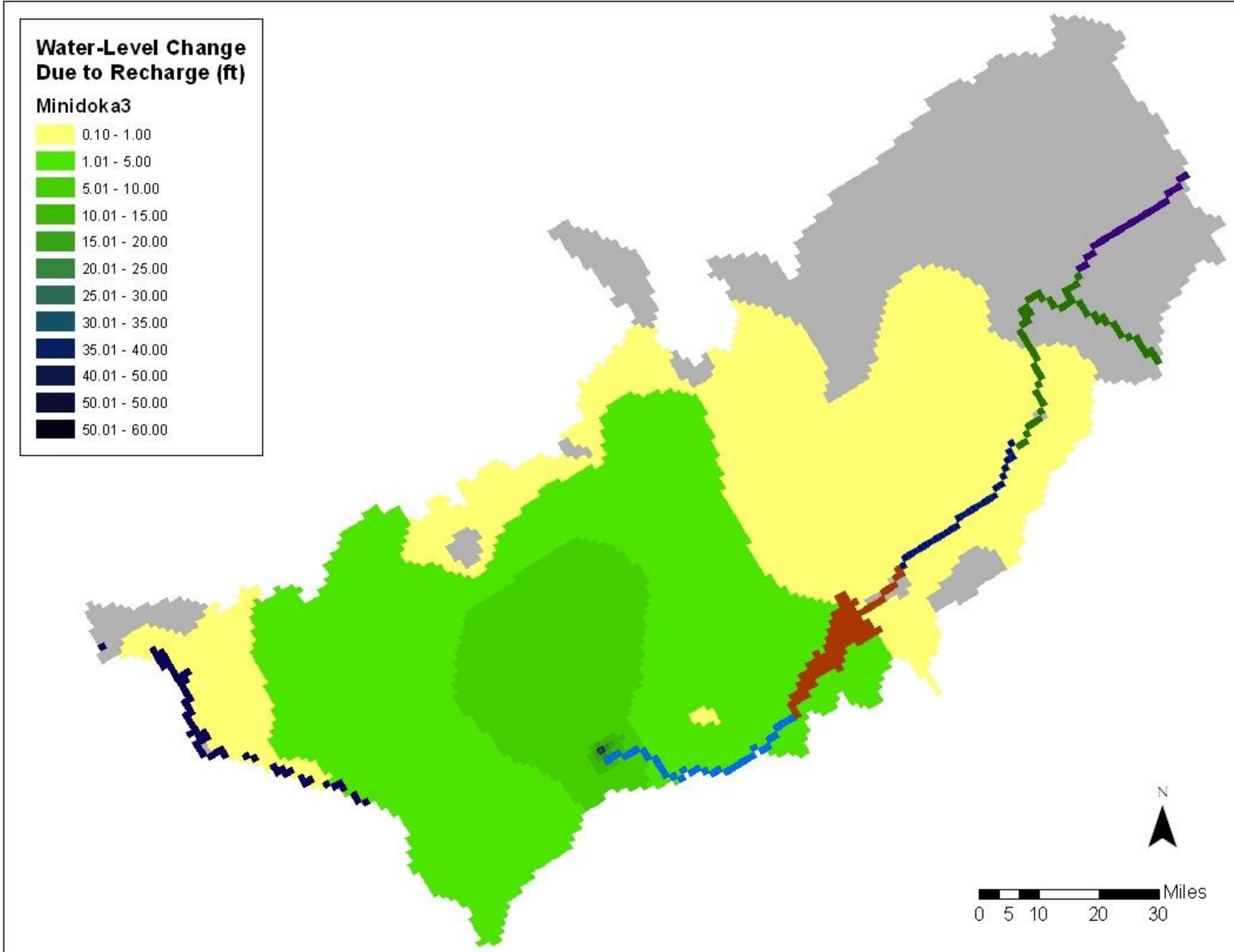
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Minidoka3
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1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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35.01 - 40.00
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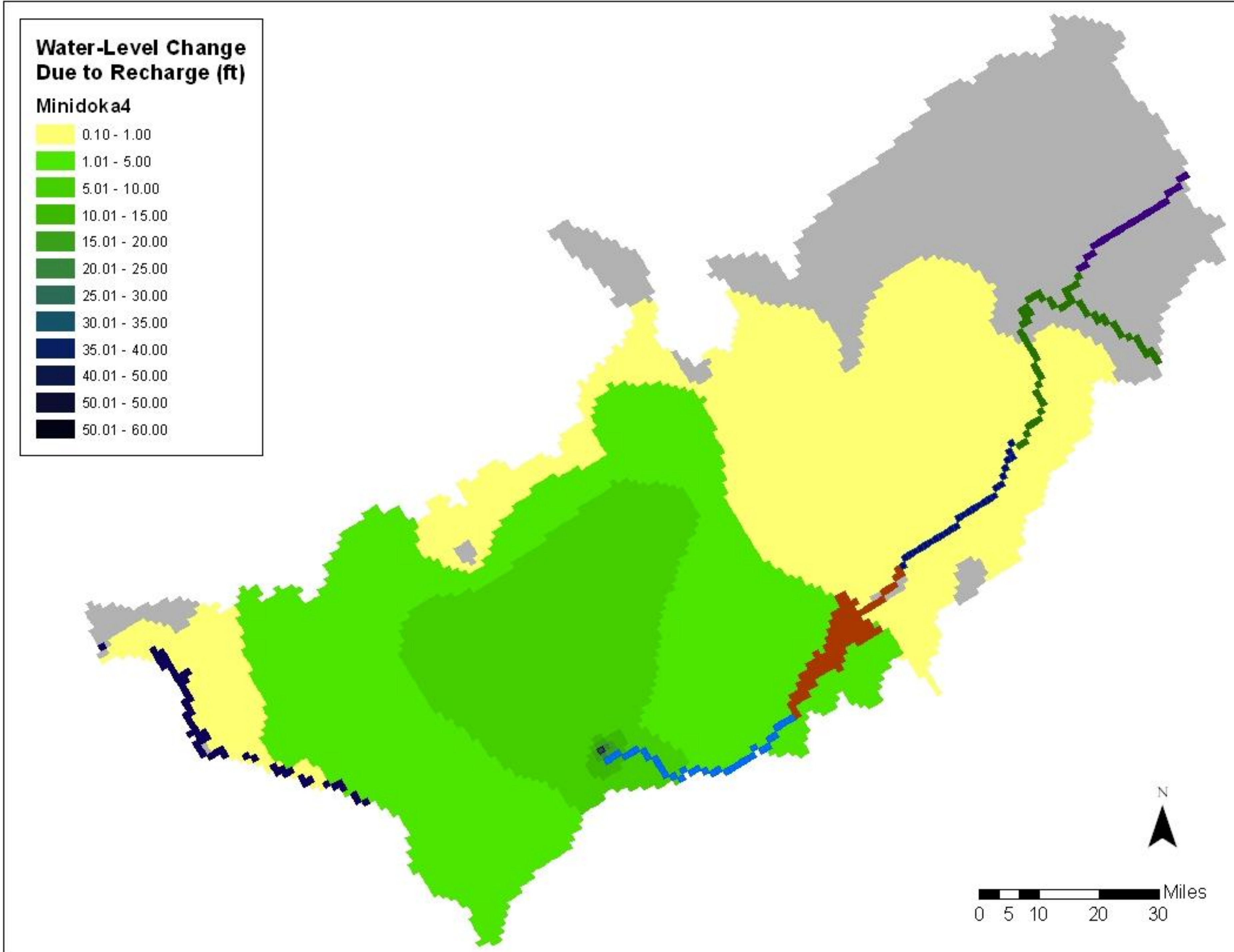
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Minidoka4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
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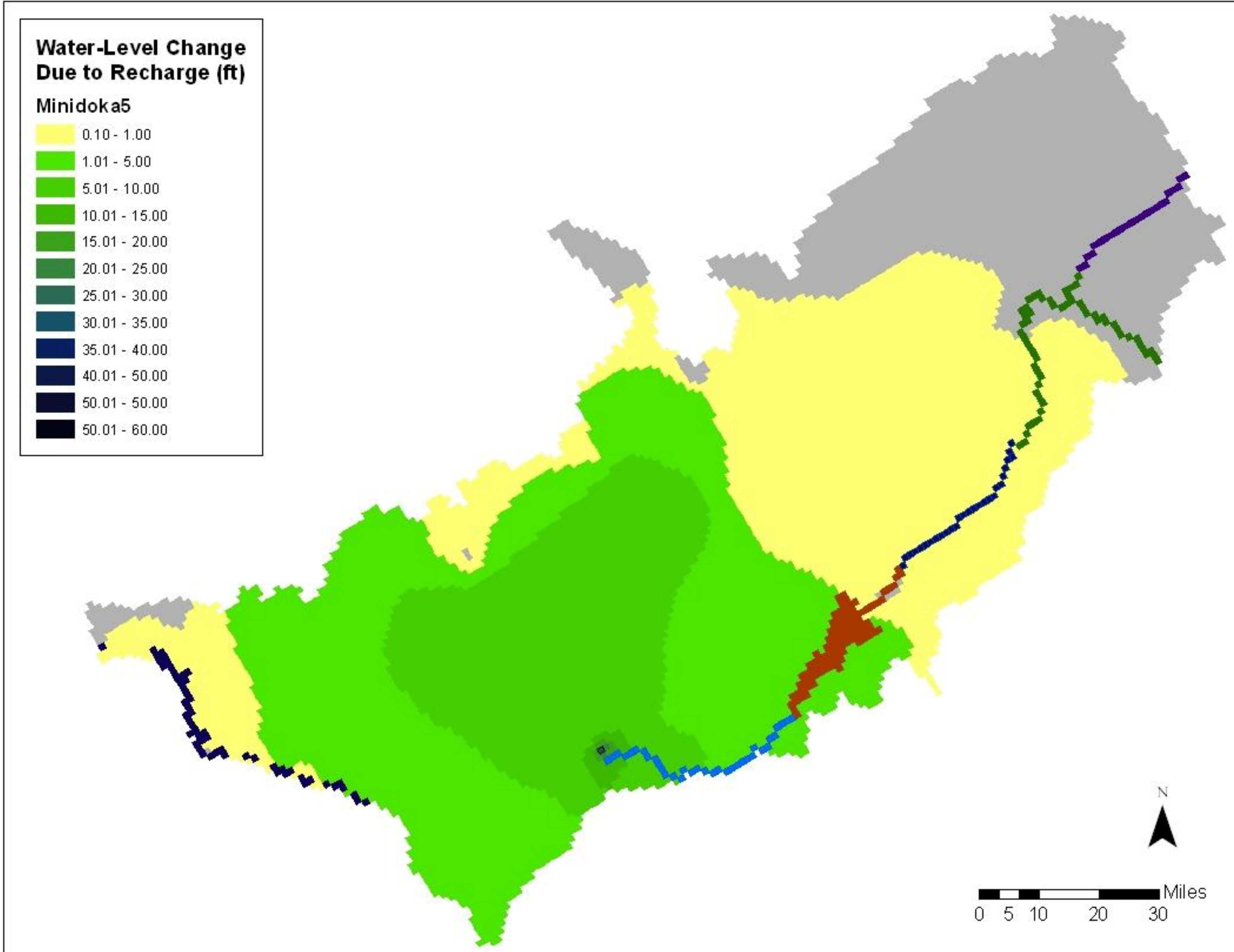
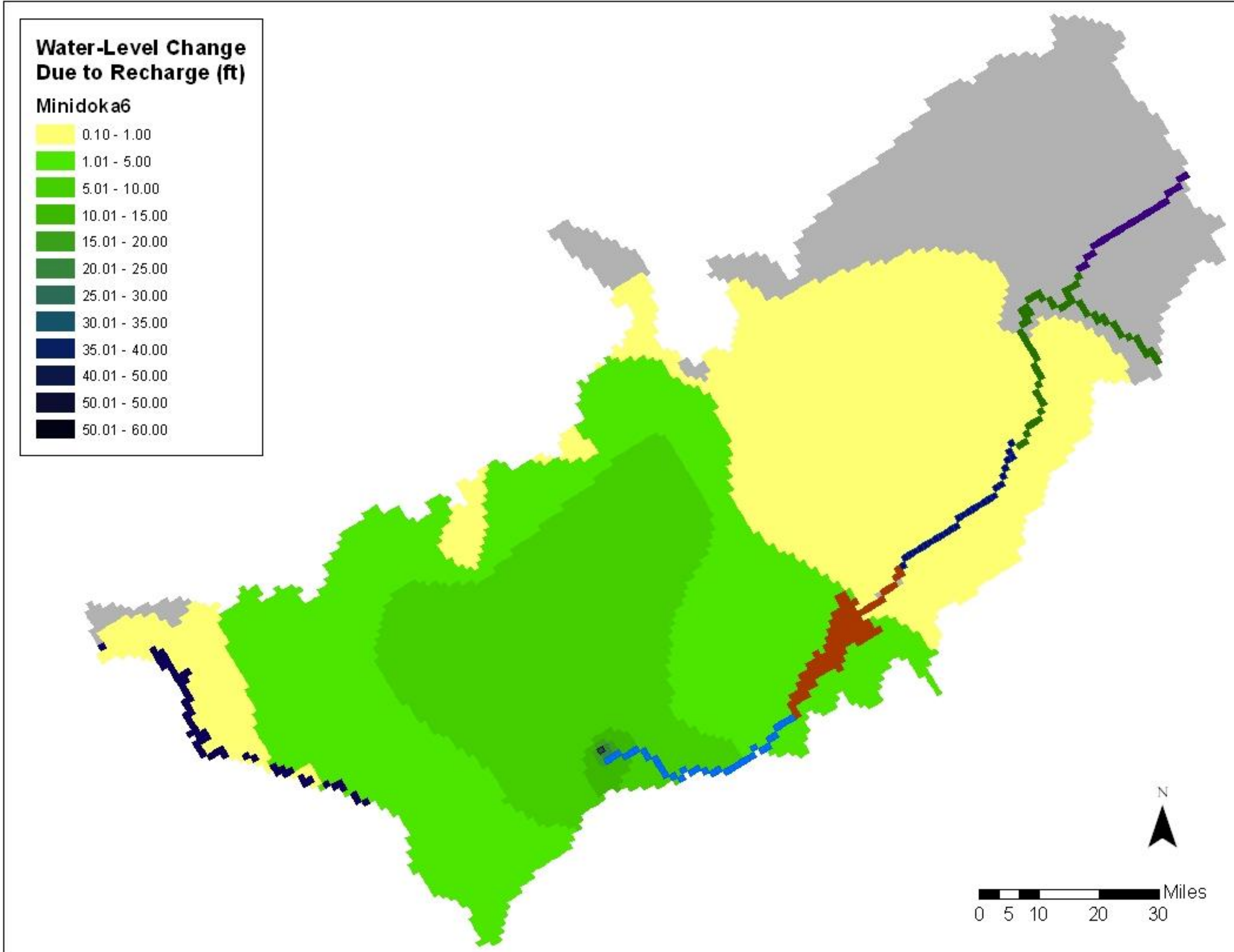
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Minidoka5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Minidoka6
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1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
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20.01 - 25.00
25.01 - 30.00
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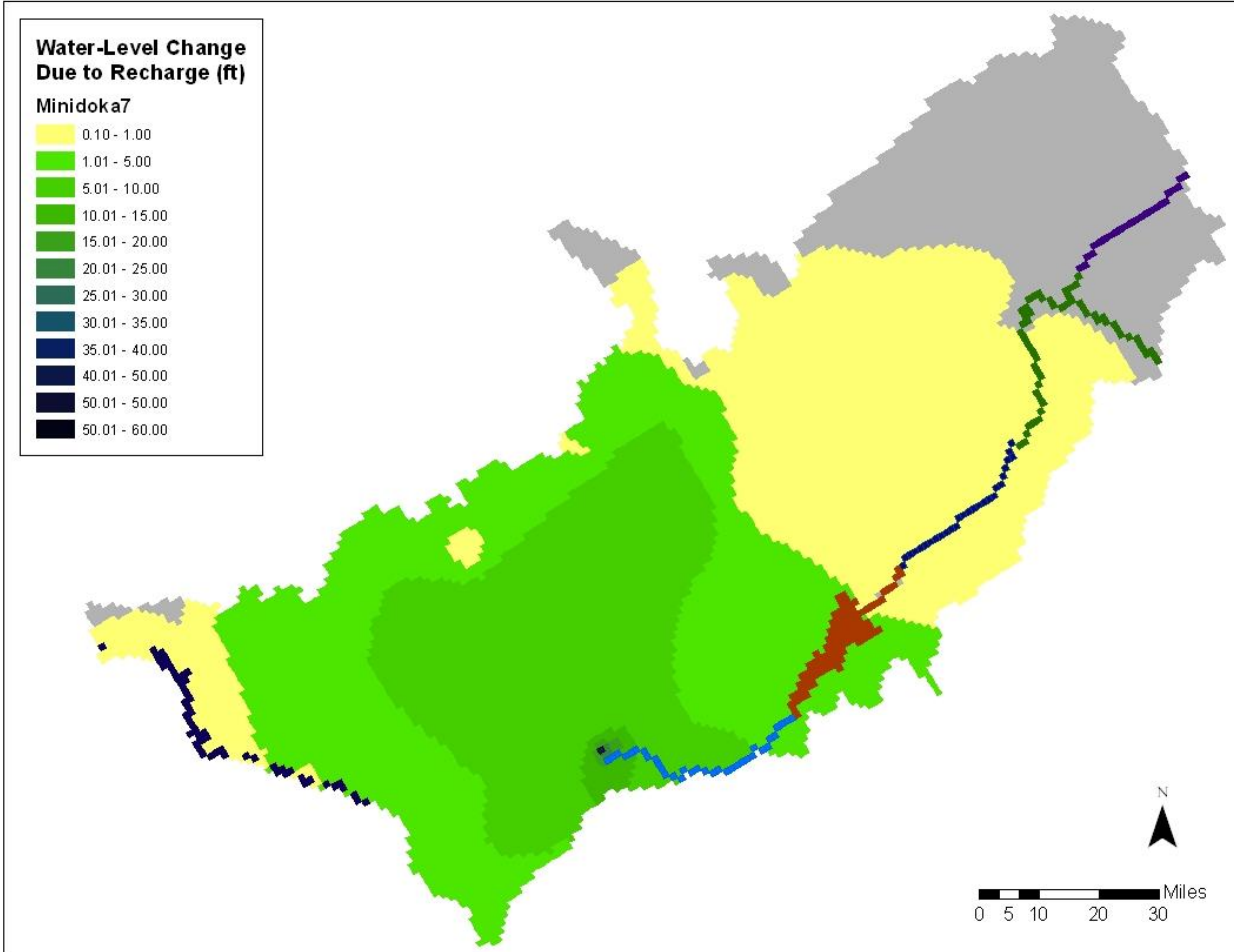
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Minidoka7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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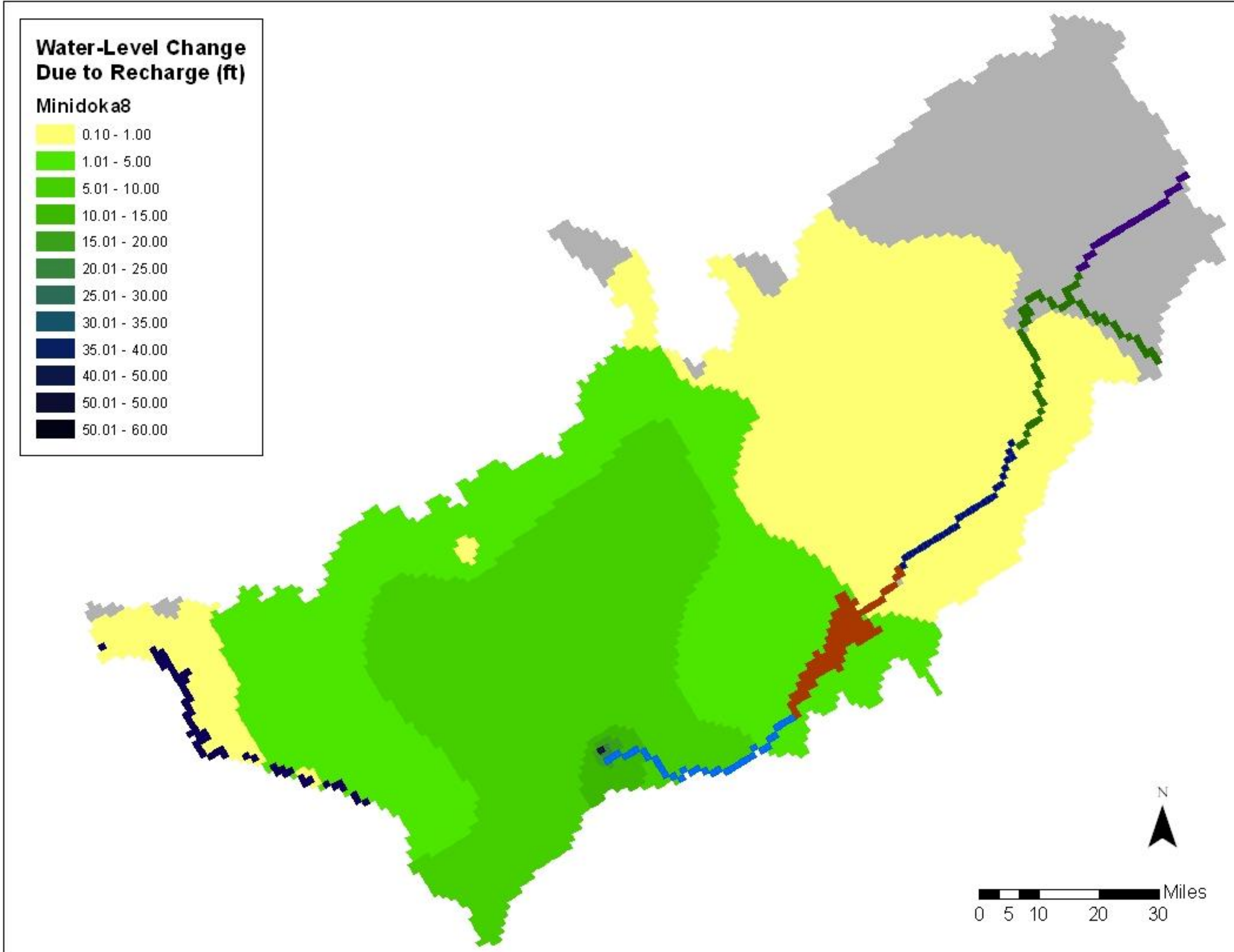
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Minidoka8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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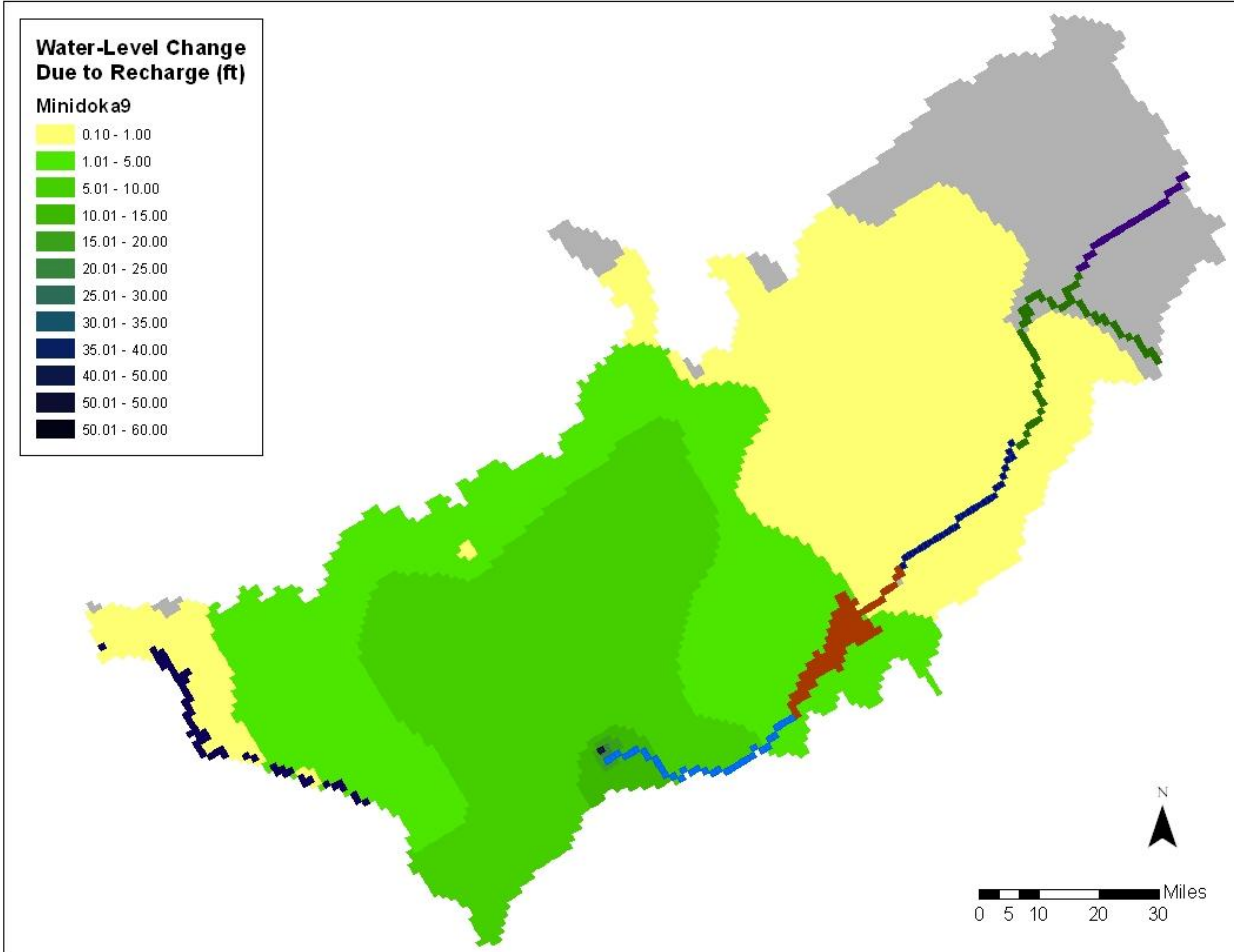
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Minidoka9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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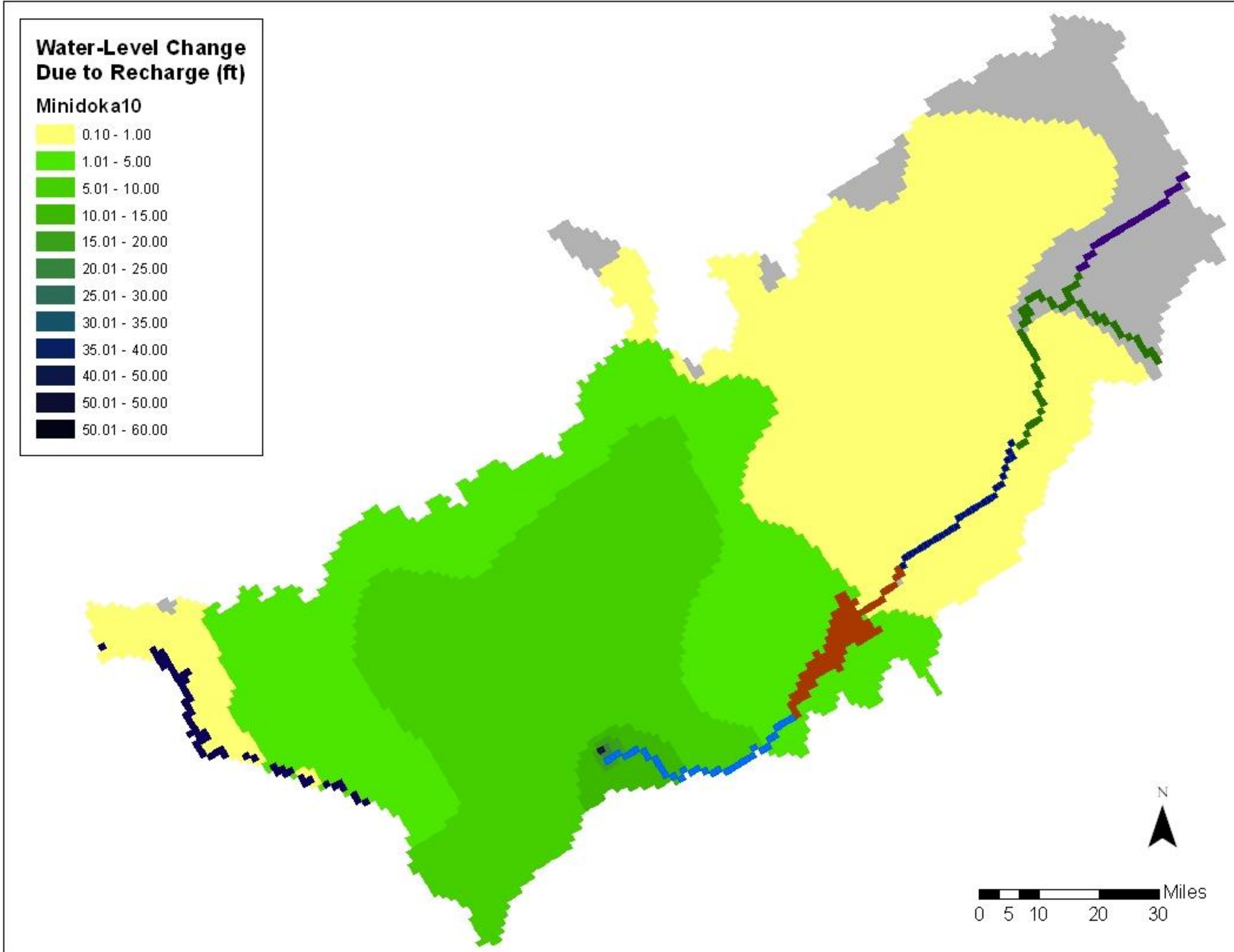
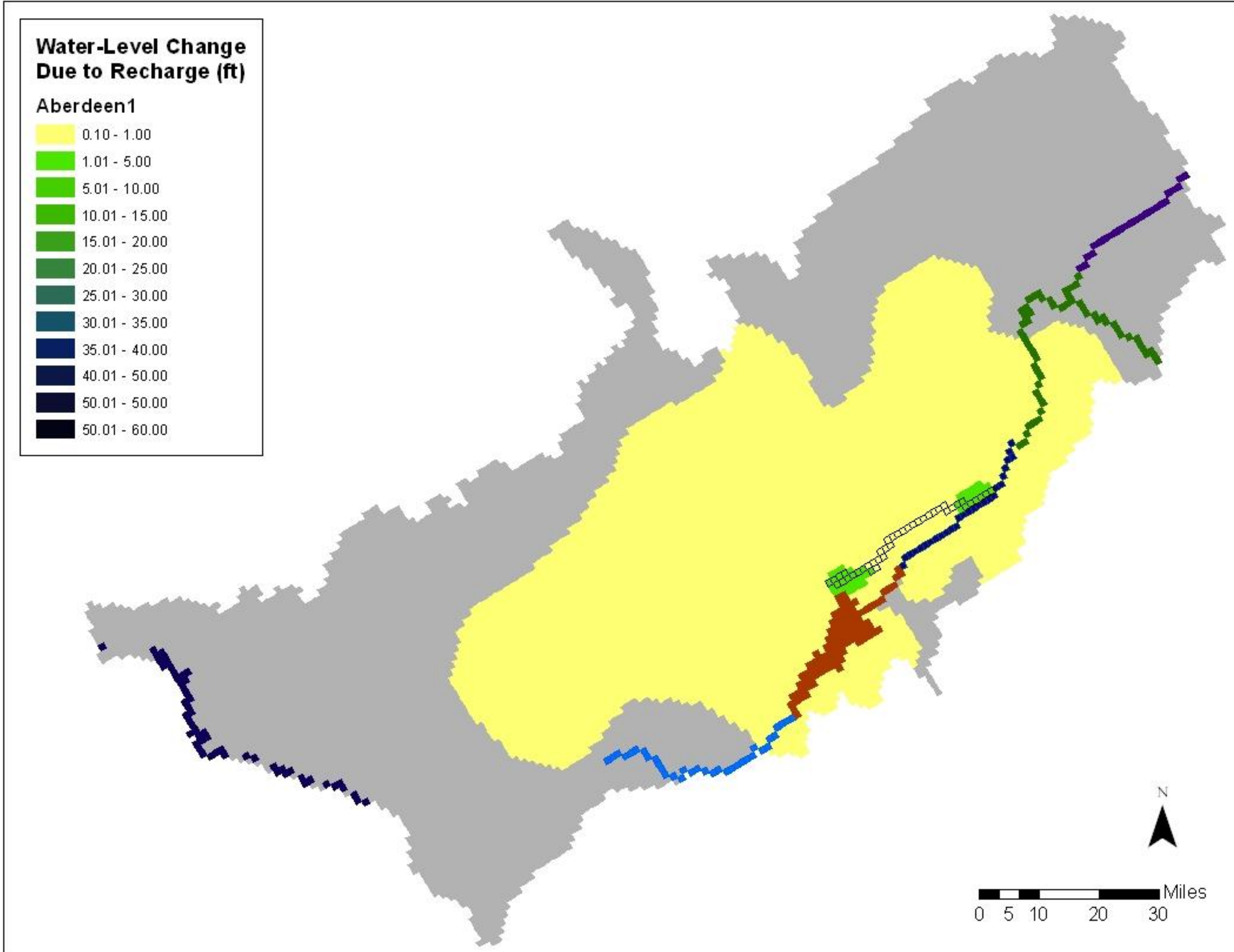
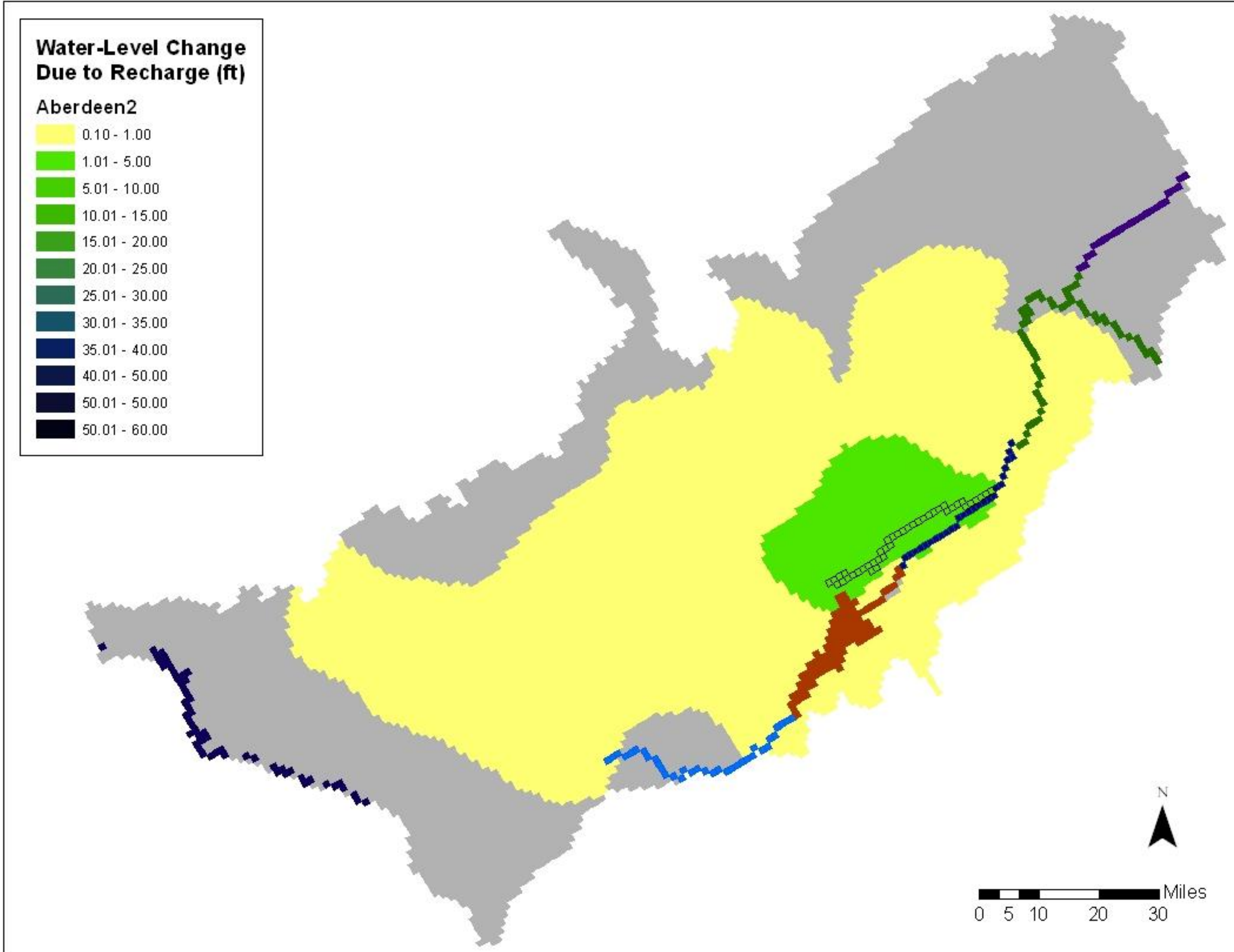
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Minidoka10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Aberdeen1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Aberdeen2
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1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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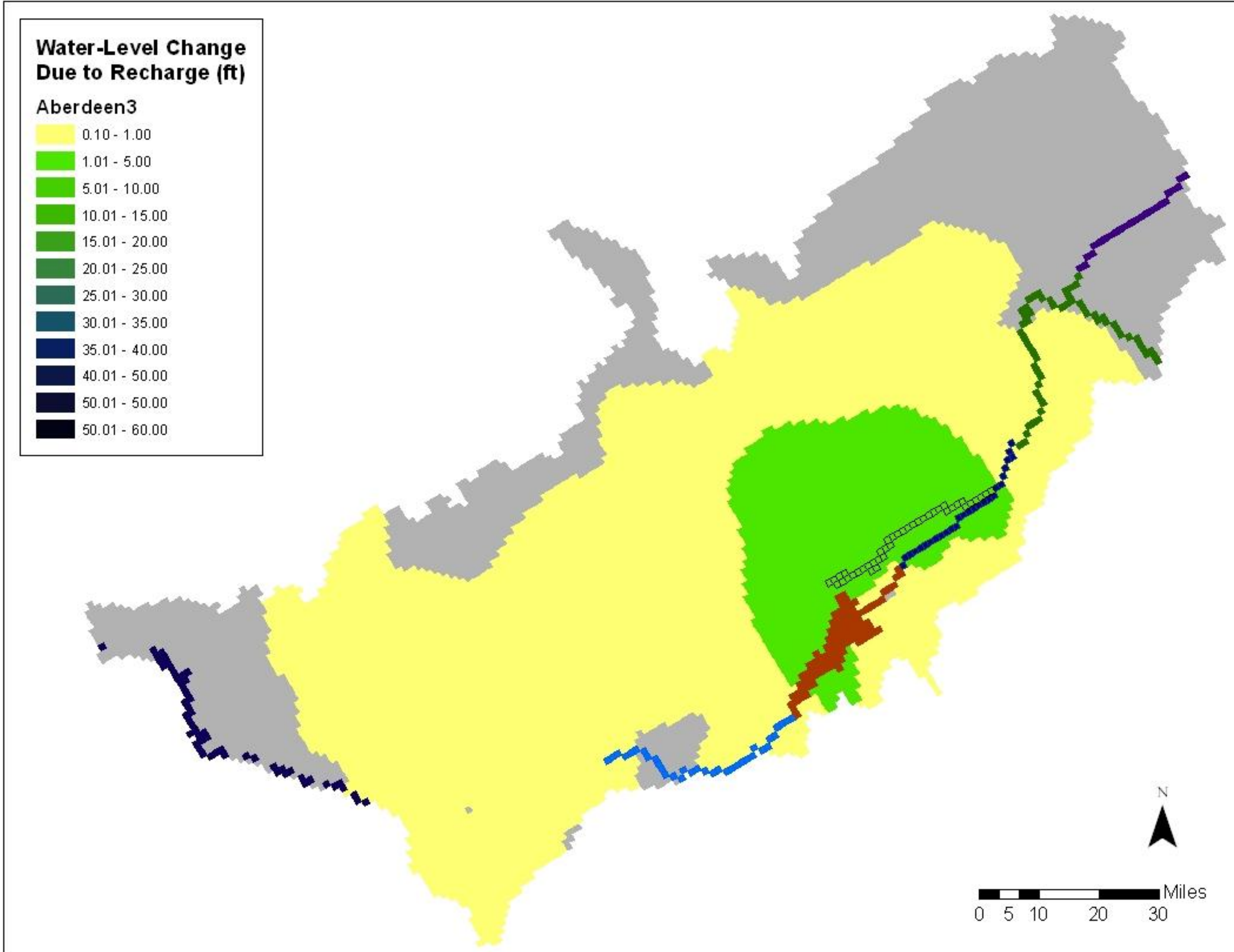
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Aberdeen3
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5.01 - 10.00
10.01 - 15.00
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20.01 - 25.00
25.01 - 30.00
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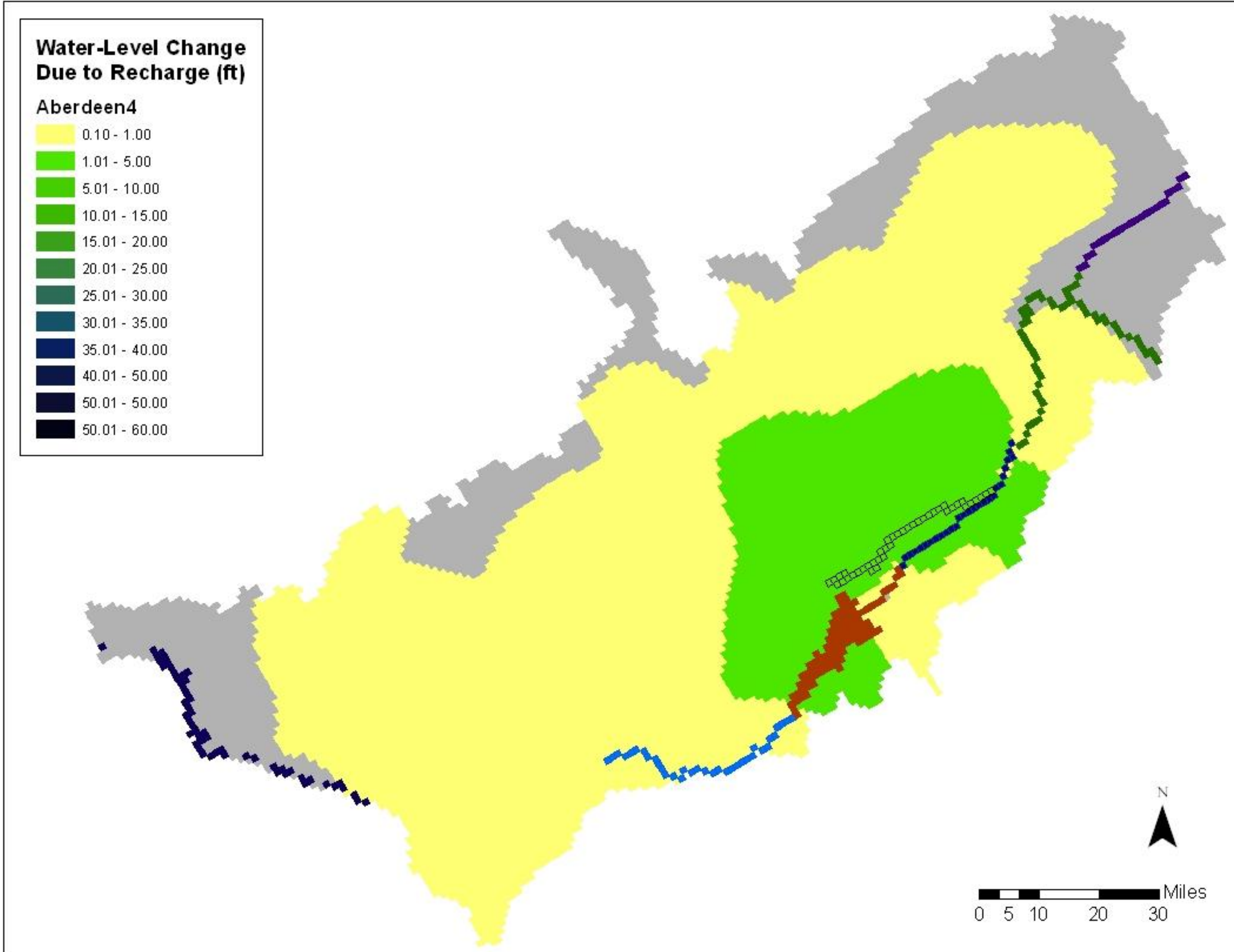
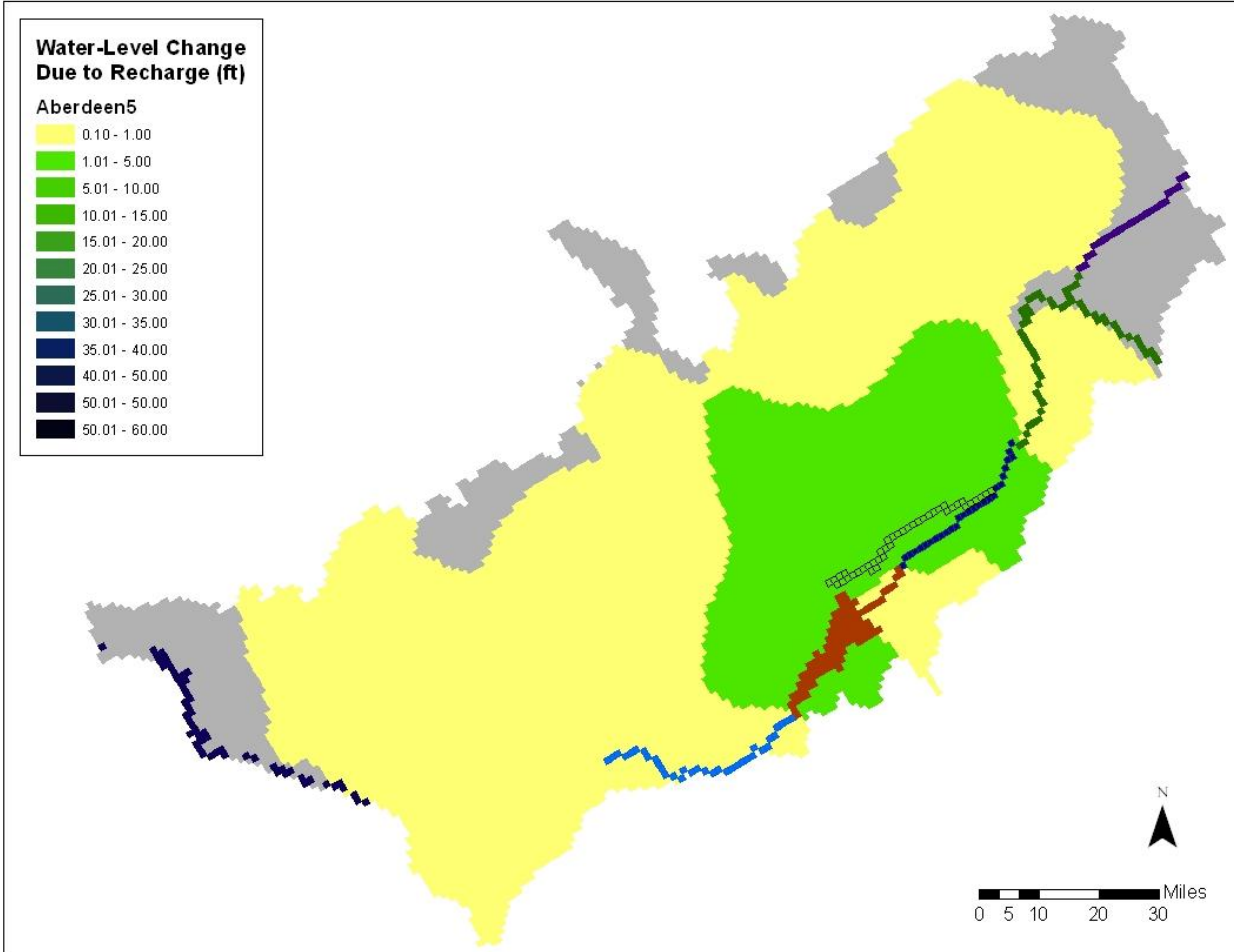
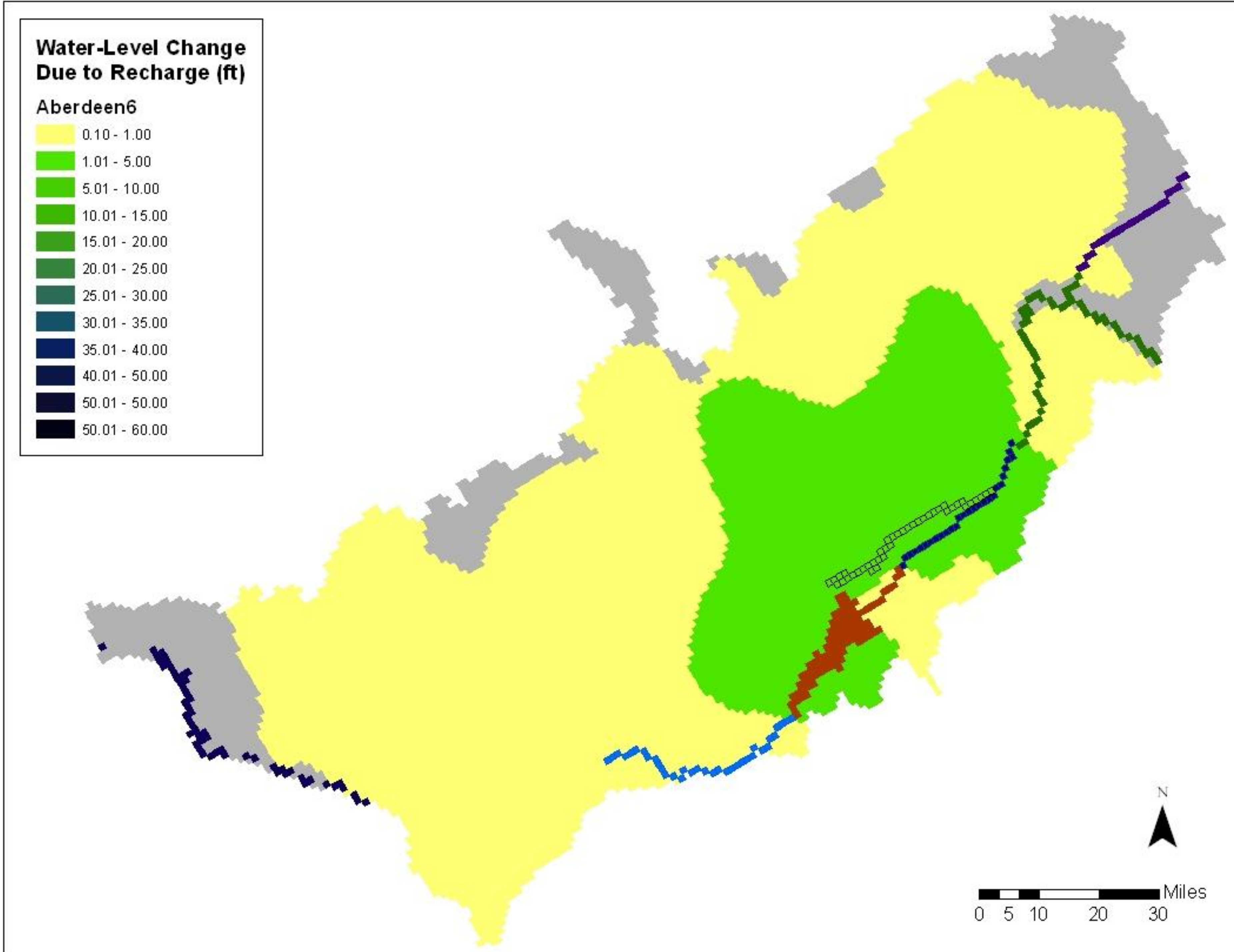
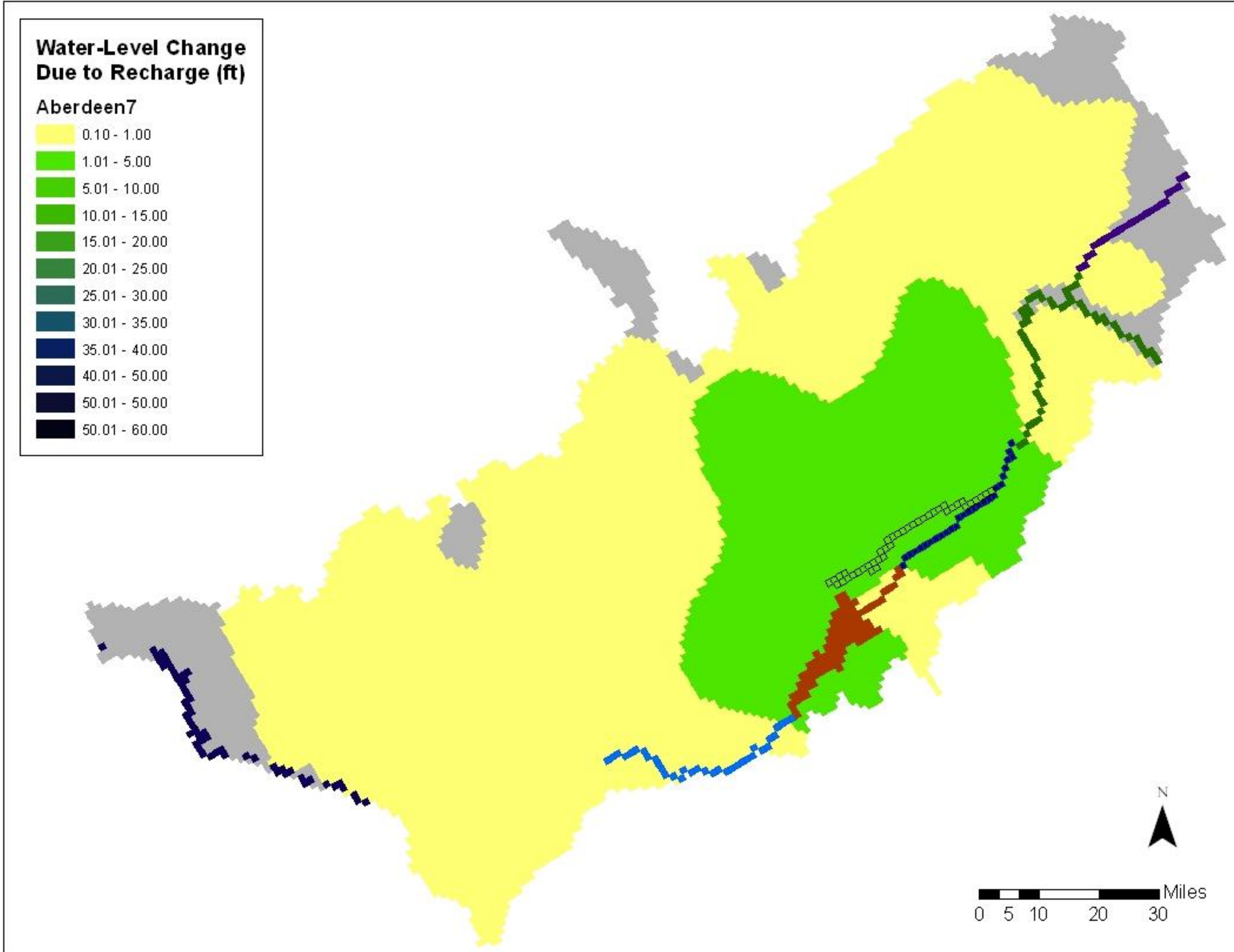
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Aberdeen4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

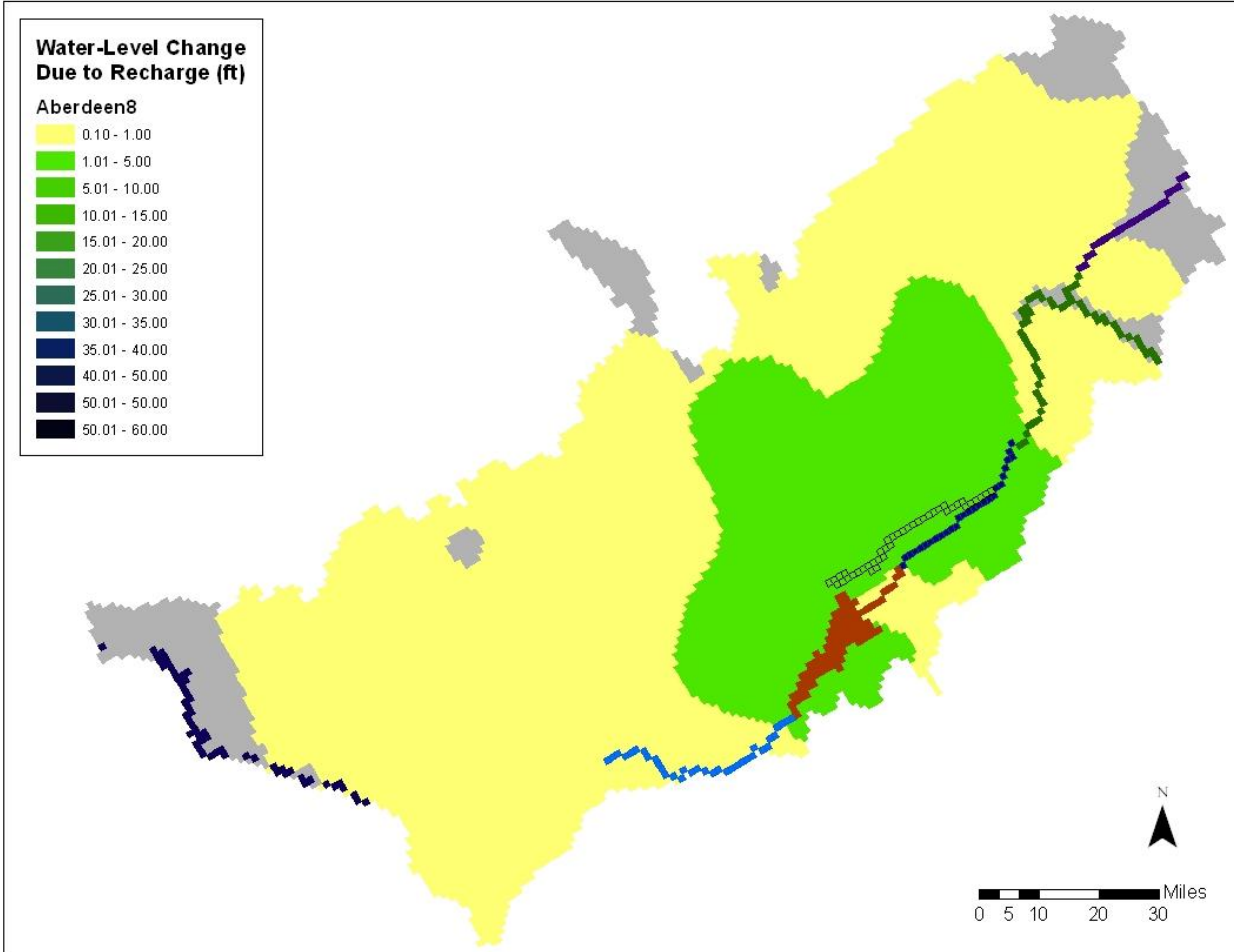


Water-Level Change
Due to Recharge (ft)
Aberdeen5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

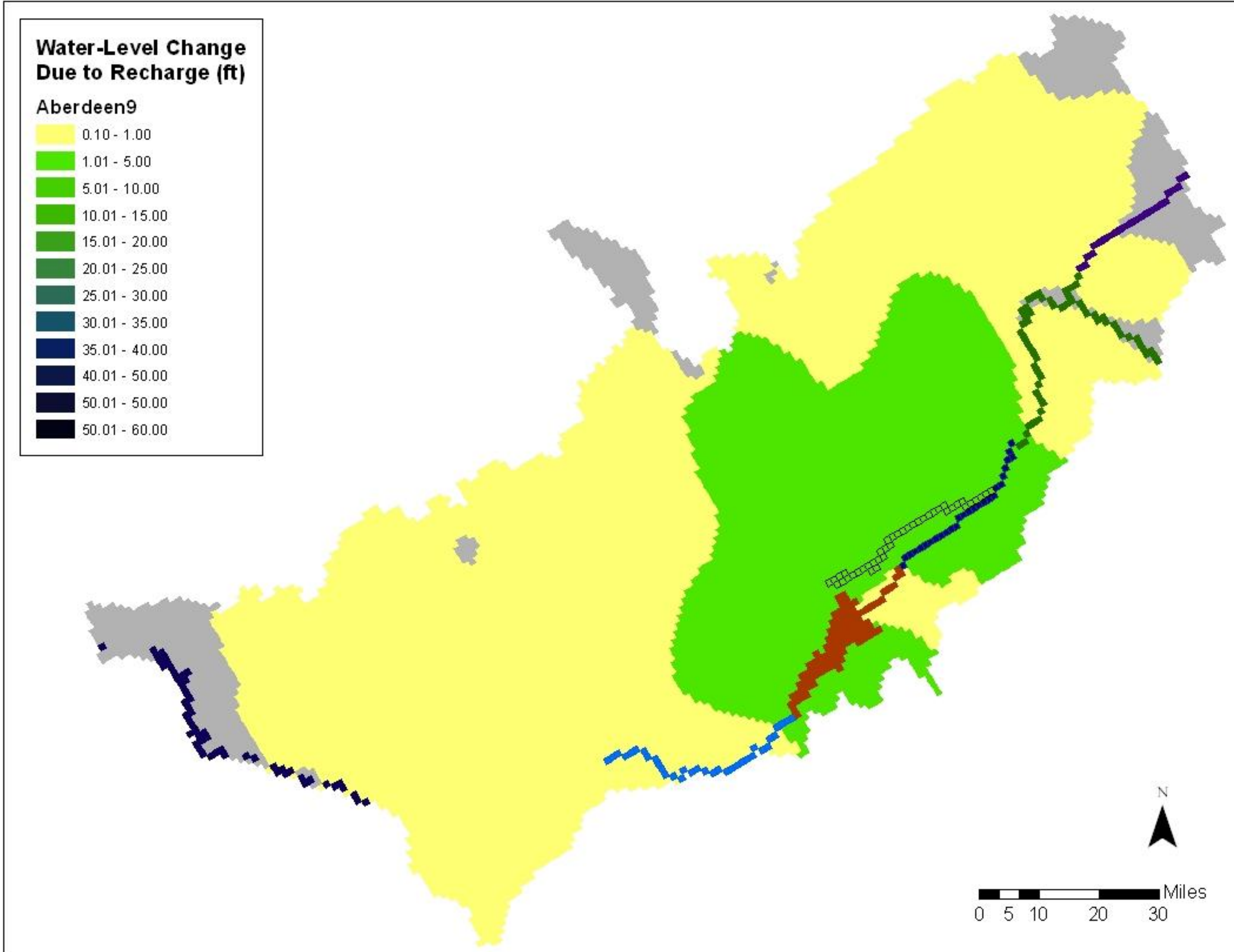

Water-Level Change
Due to Recharge (ft)
Aberdeen6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
Aberdeen7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0
5
10
20
30



Water-Level Change
Due to Recharge (ft)
Aberdeen8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Aberdeen9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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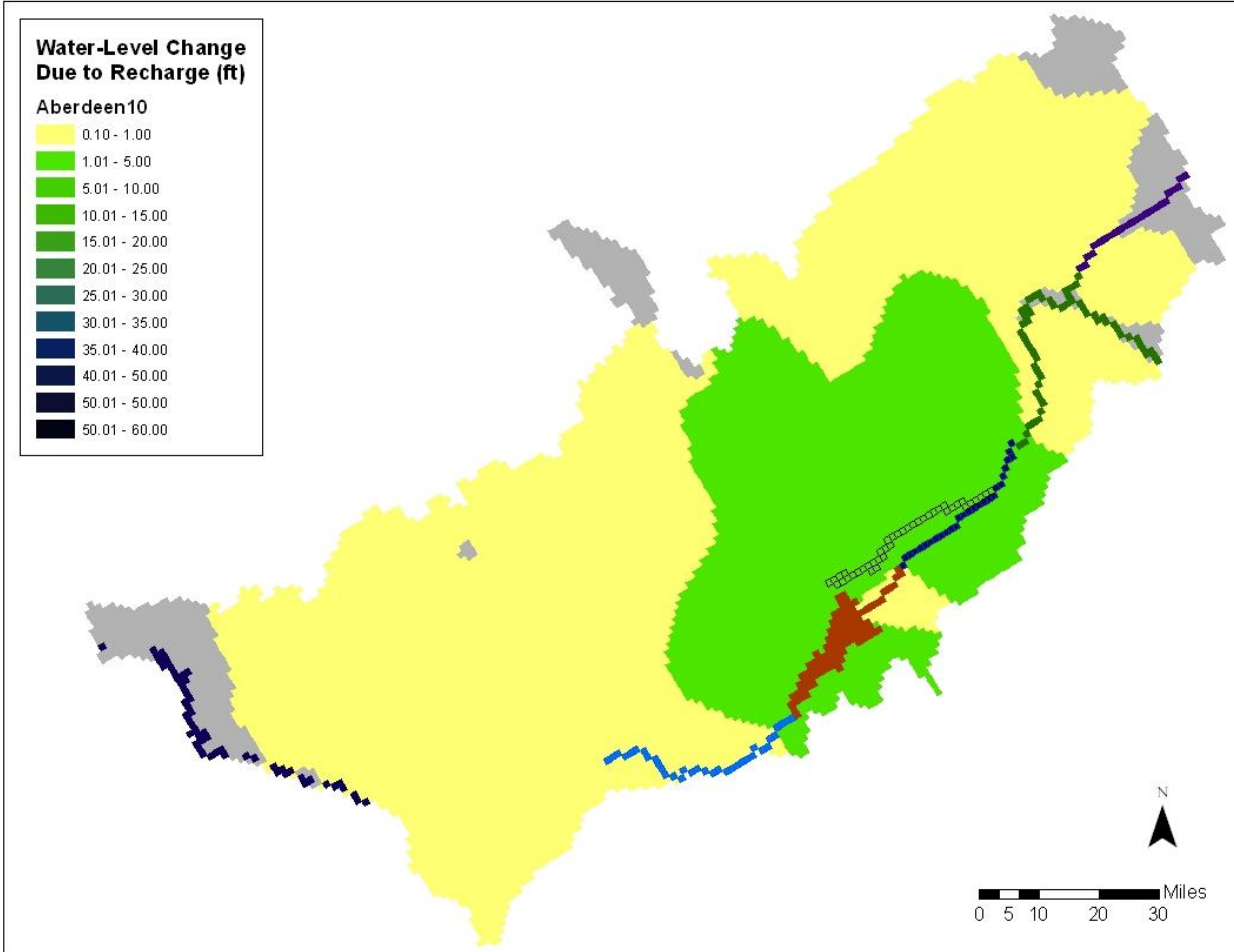
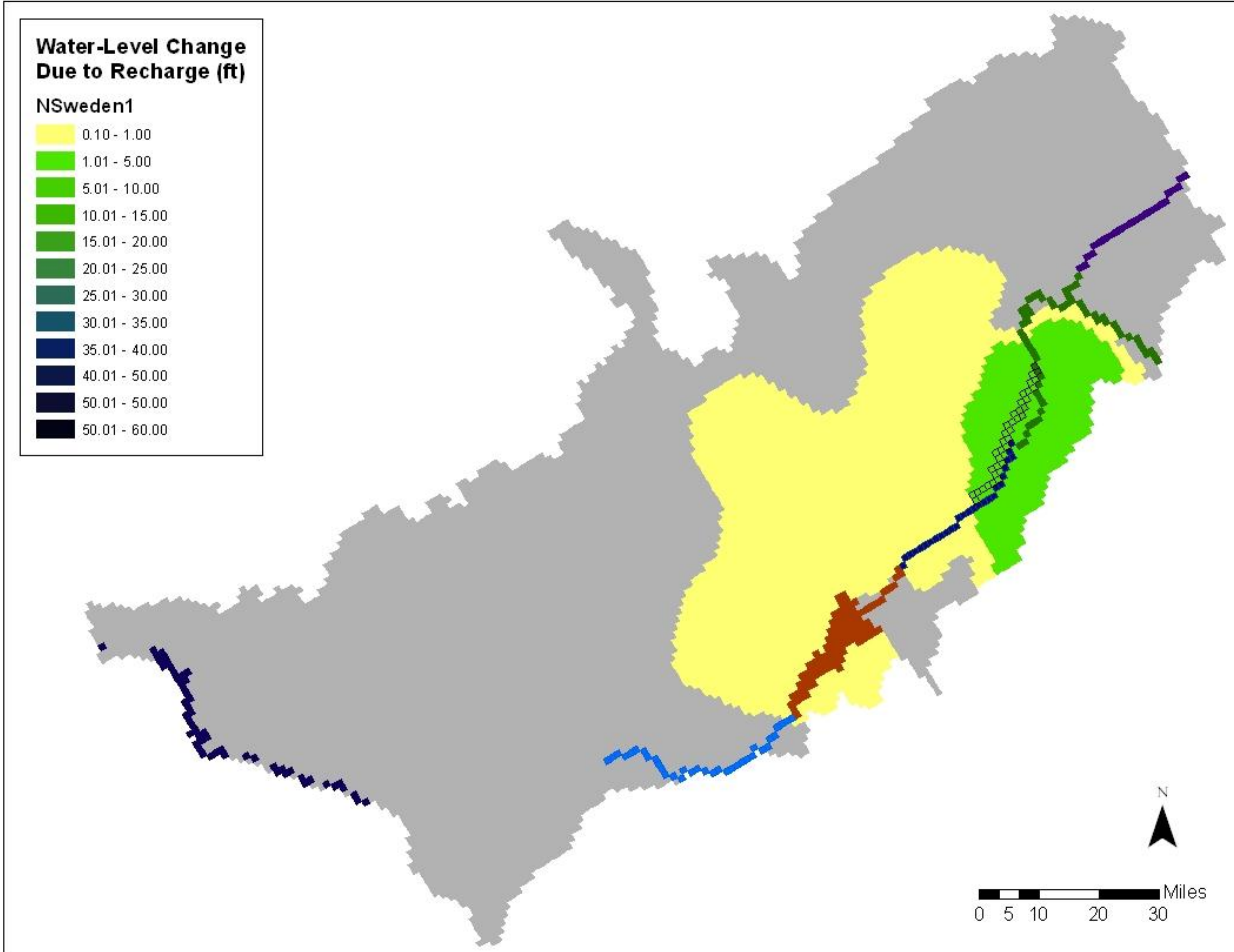
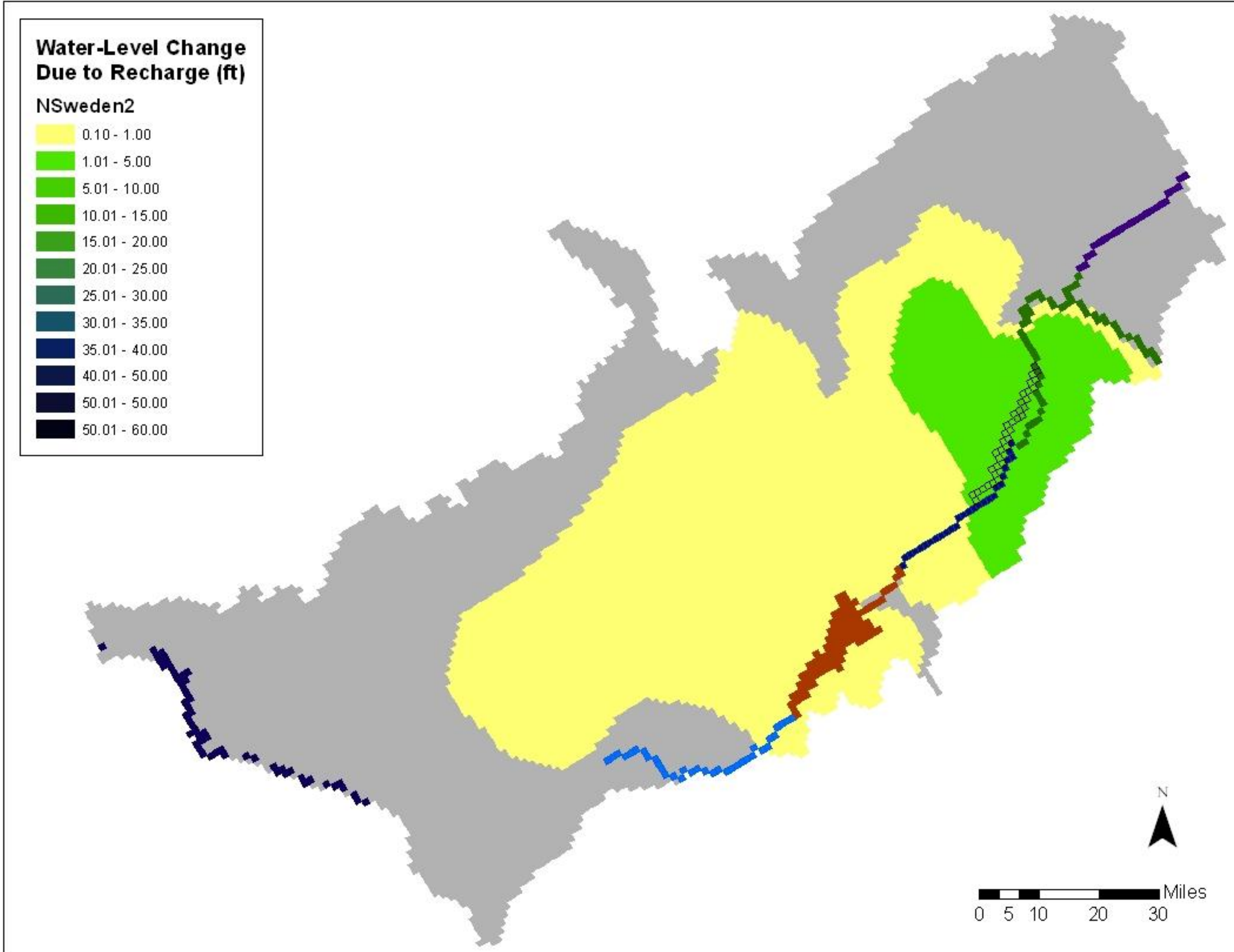
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Aberdeen10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
NSweden1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
NSweden2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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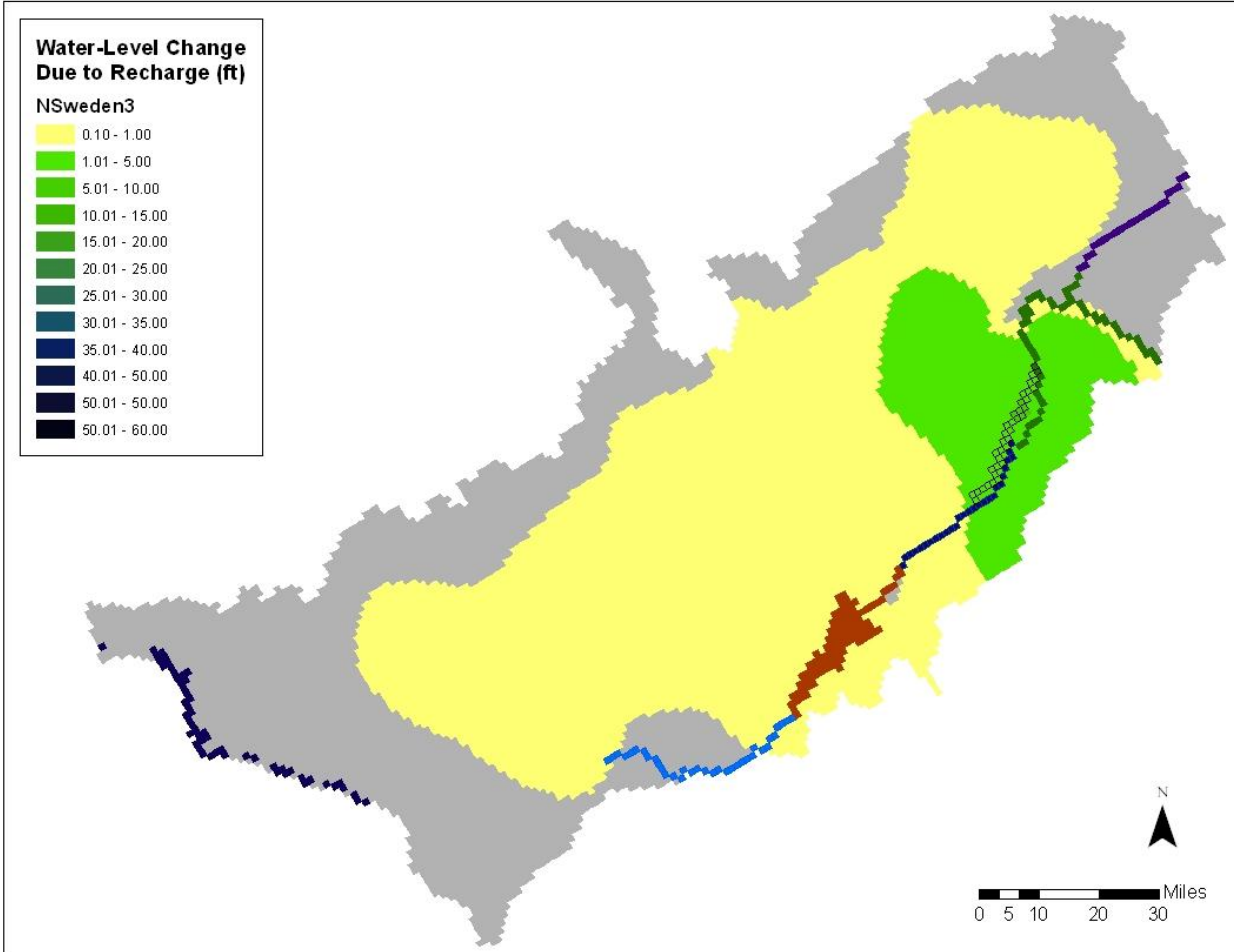
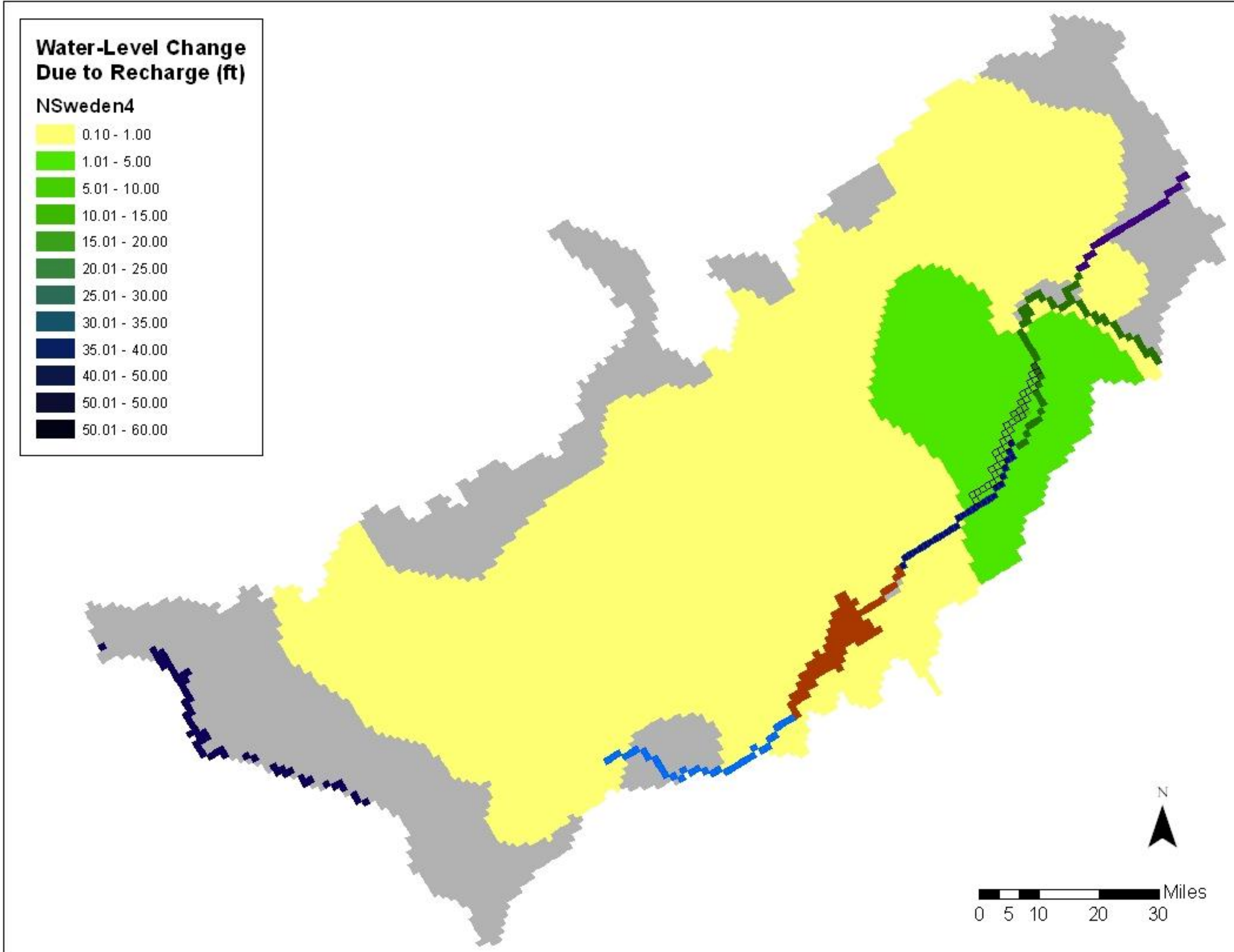
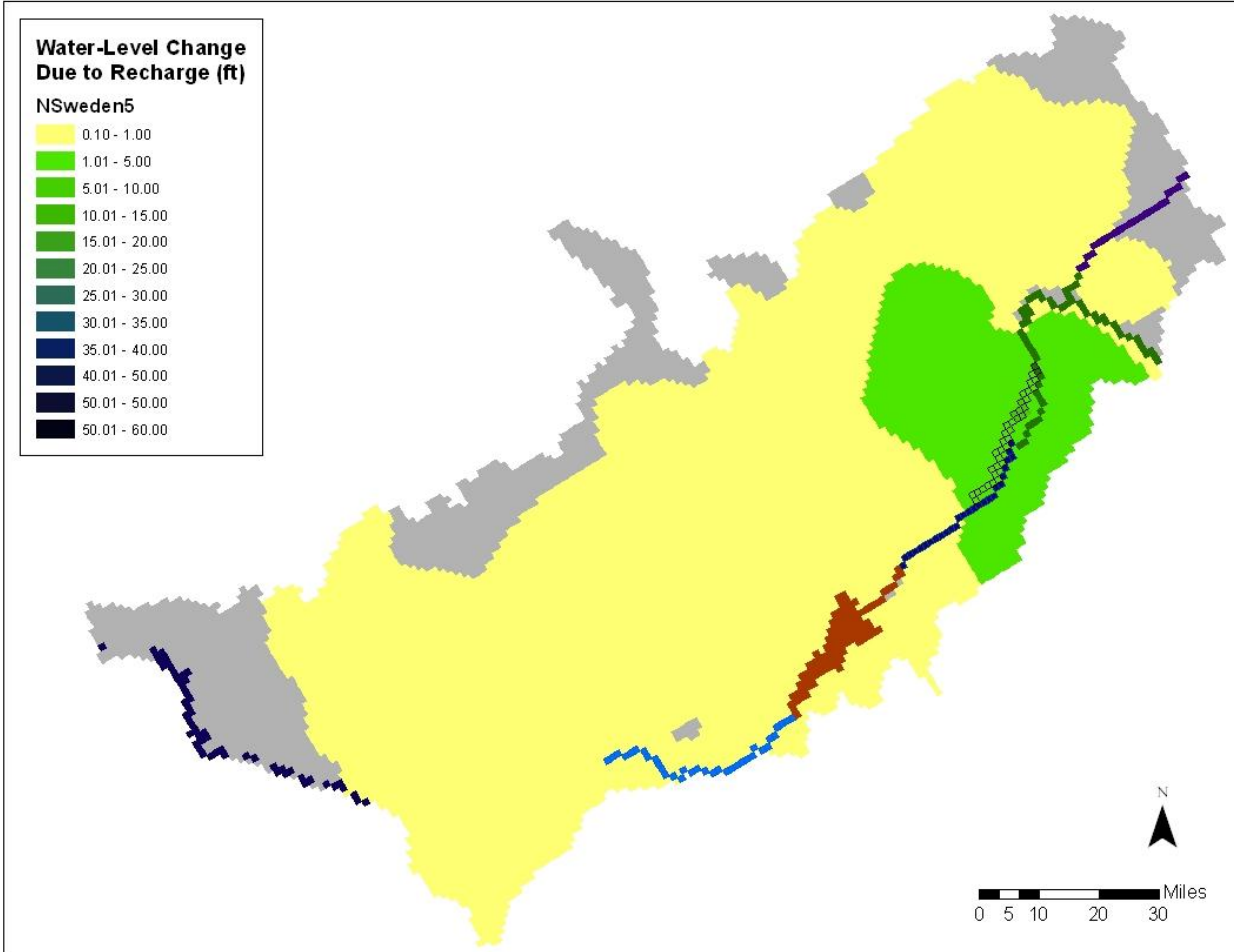
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
NSweden3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
NSweden4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
NSweden5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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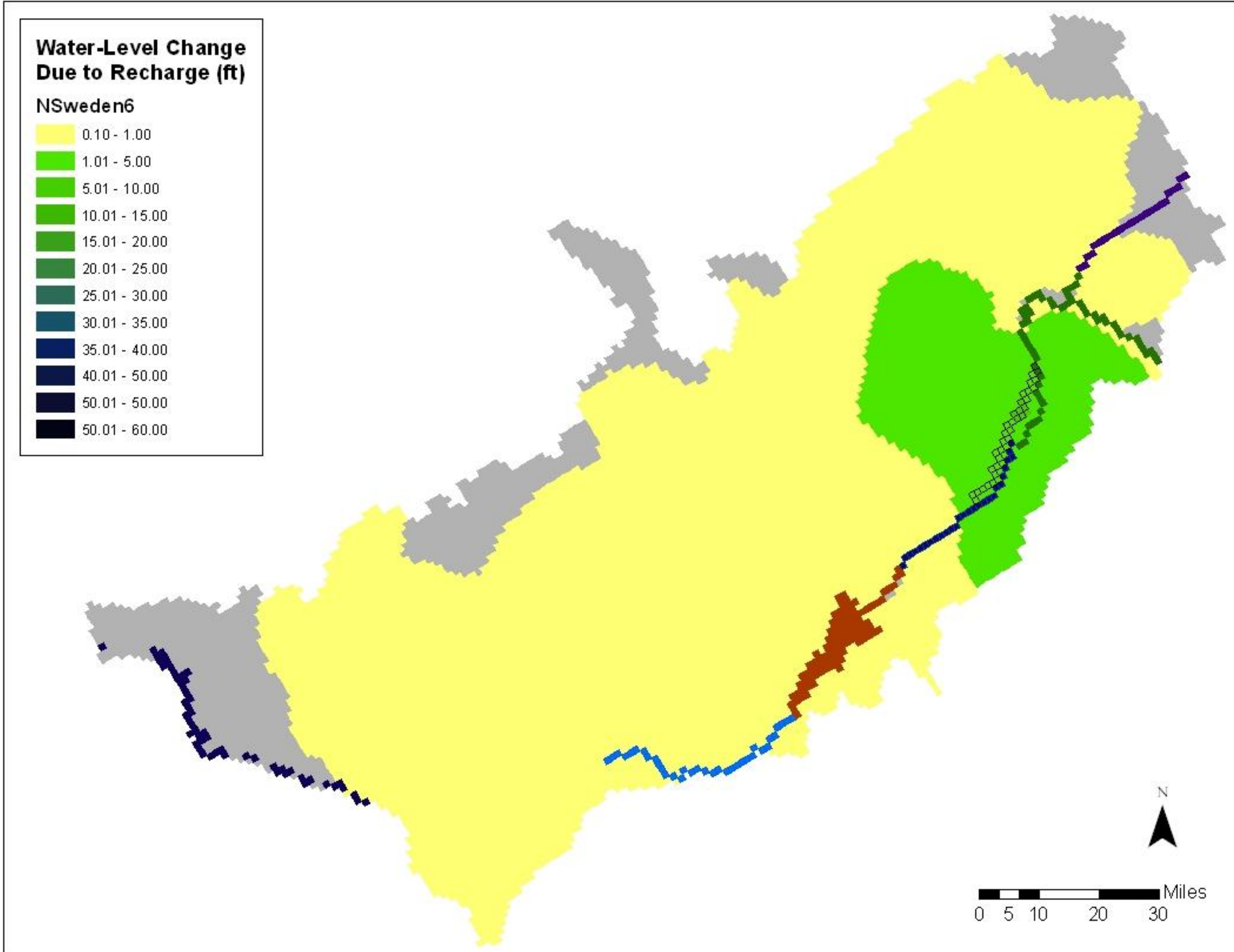
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
NSweden6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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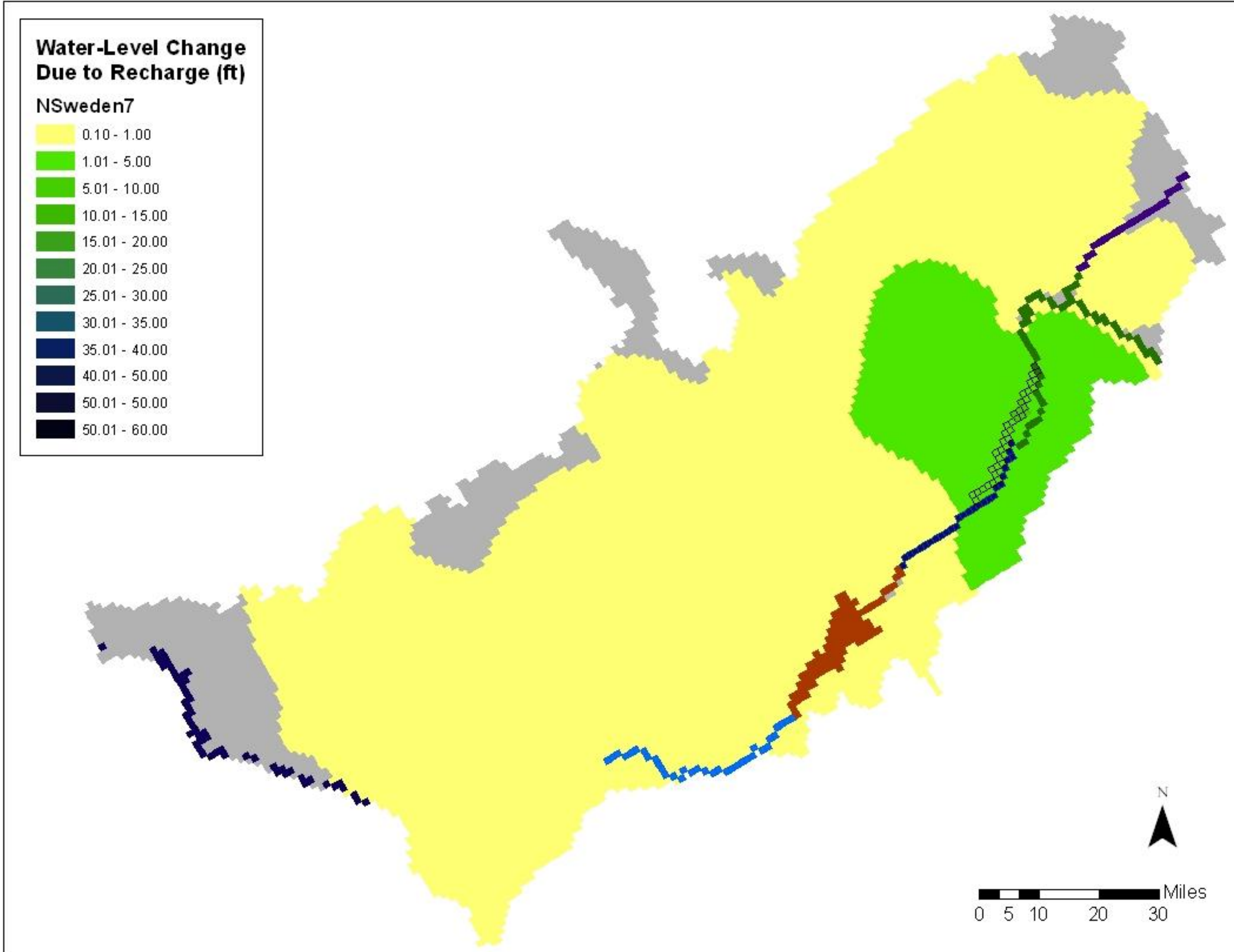
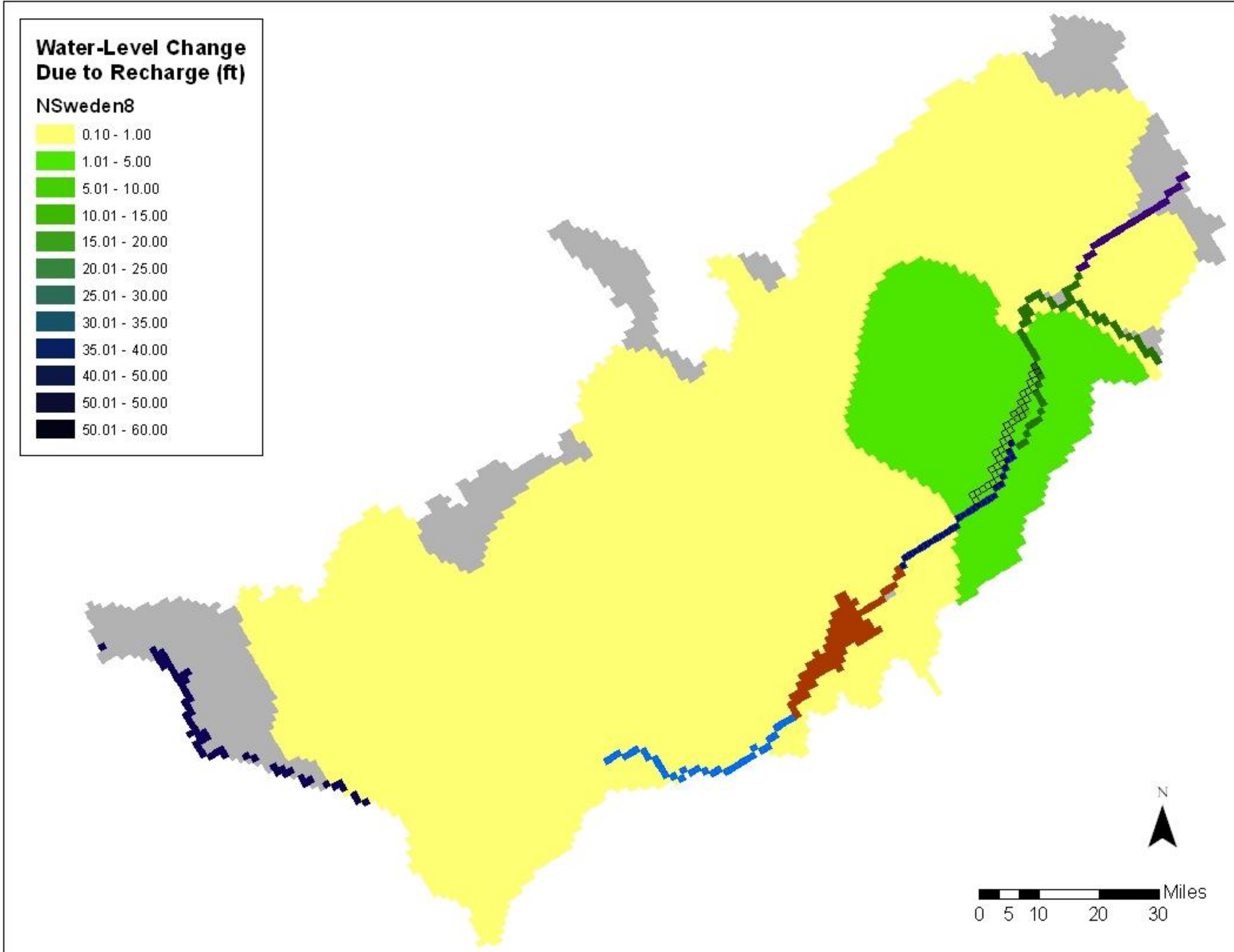
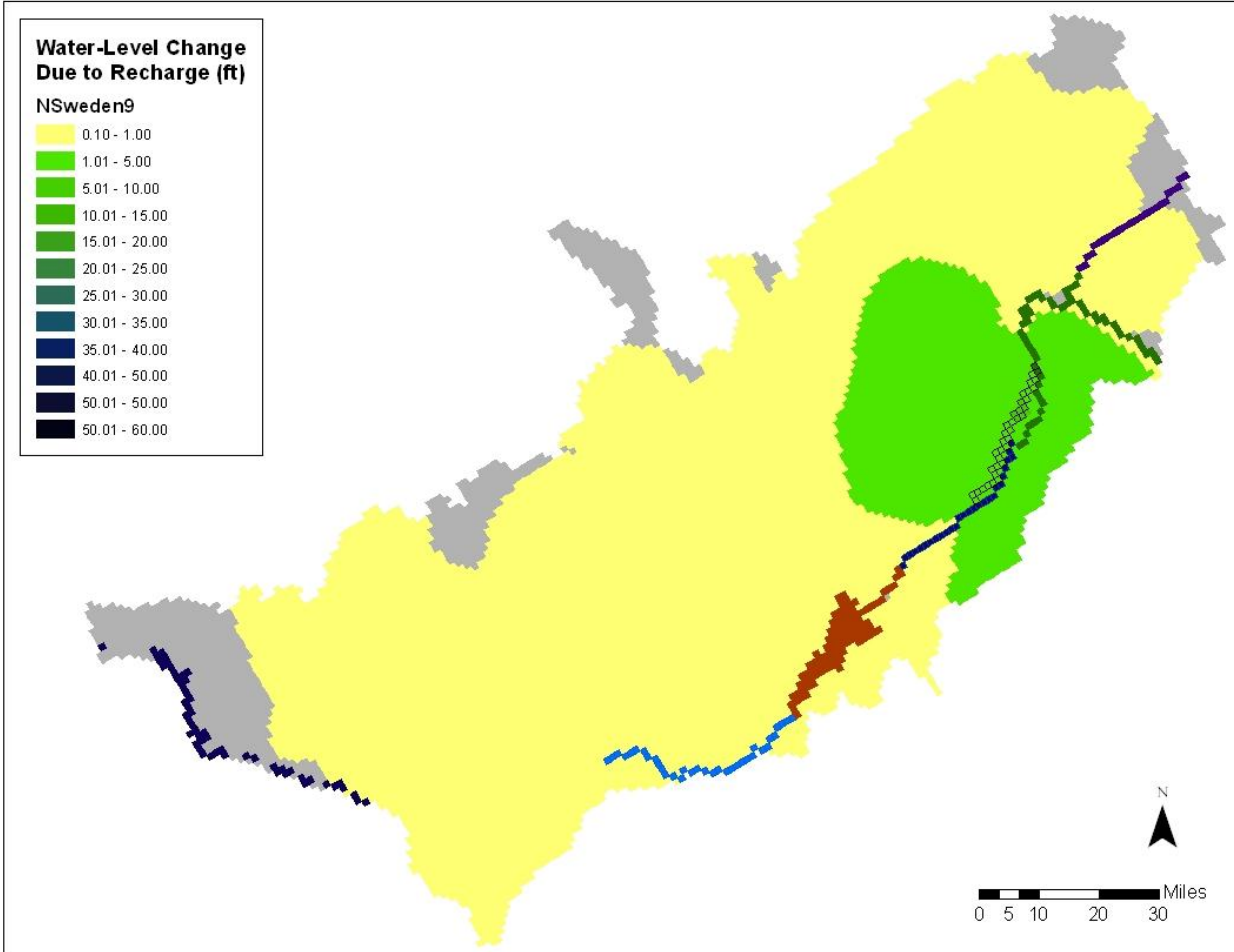
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
NSweden7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
NSweden8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
0 5 10 20 30
Miles



Water-Level Change Due to Recharge (ft)
NSweden9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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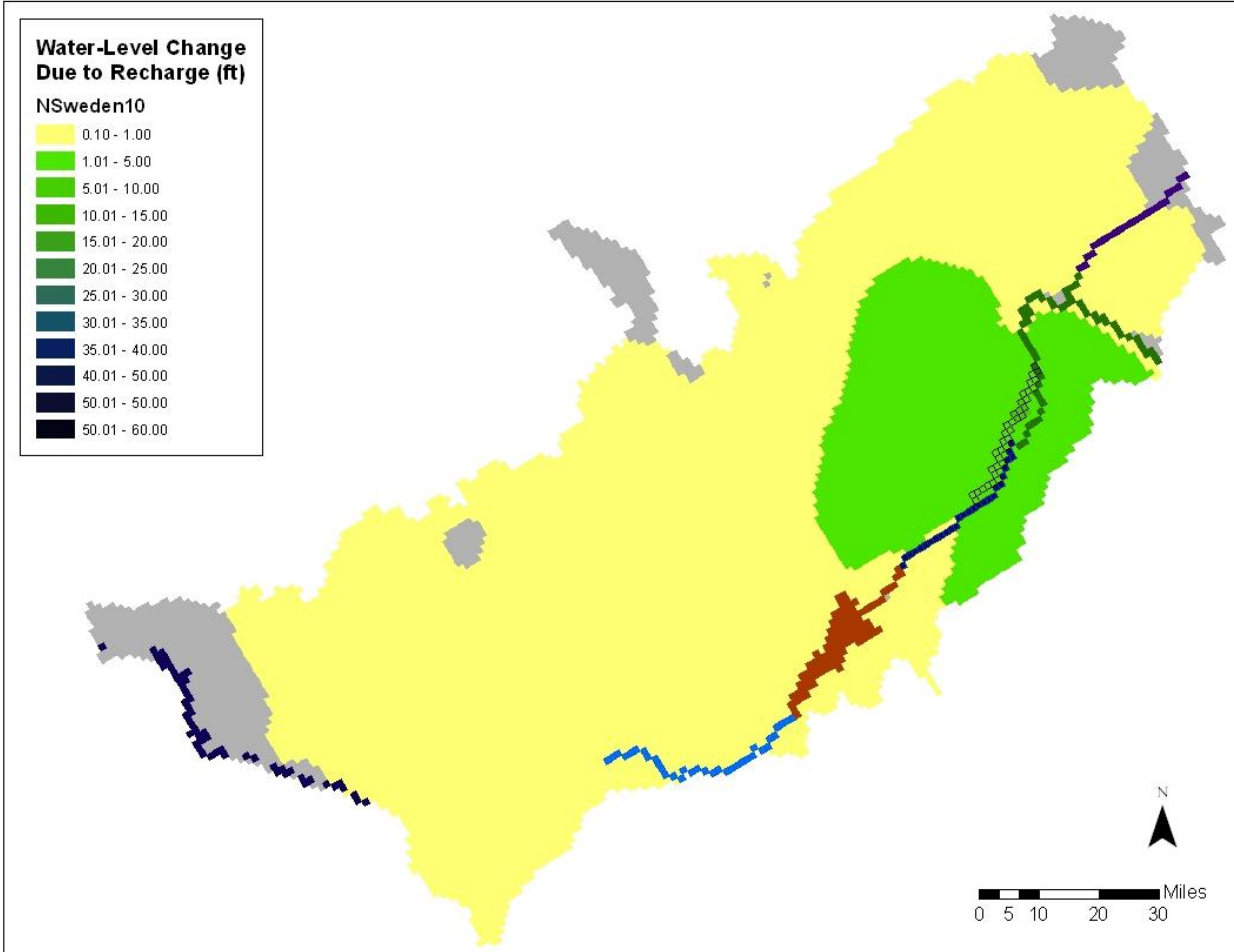
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
NSweden10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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40.01 - 50.00
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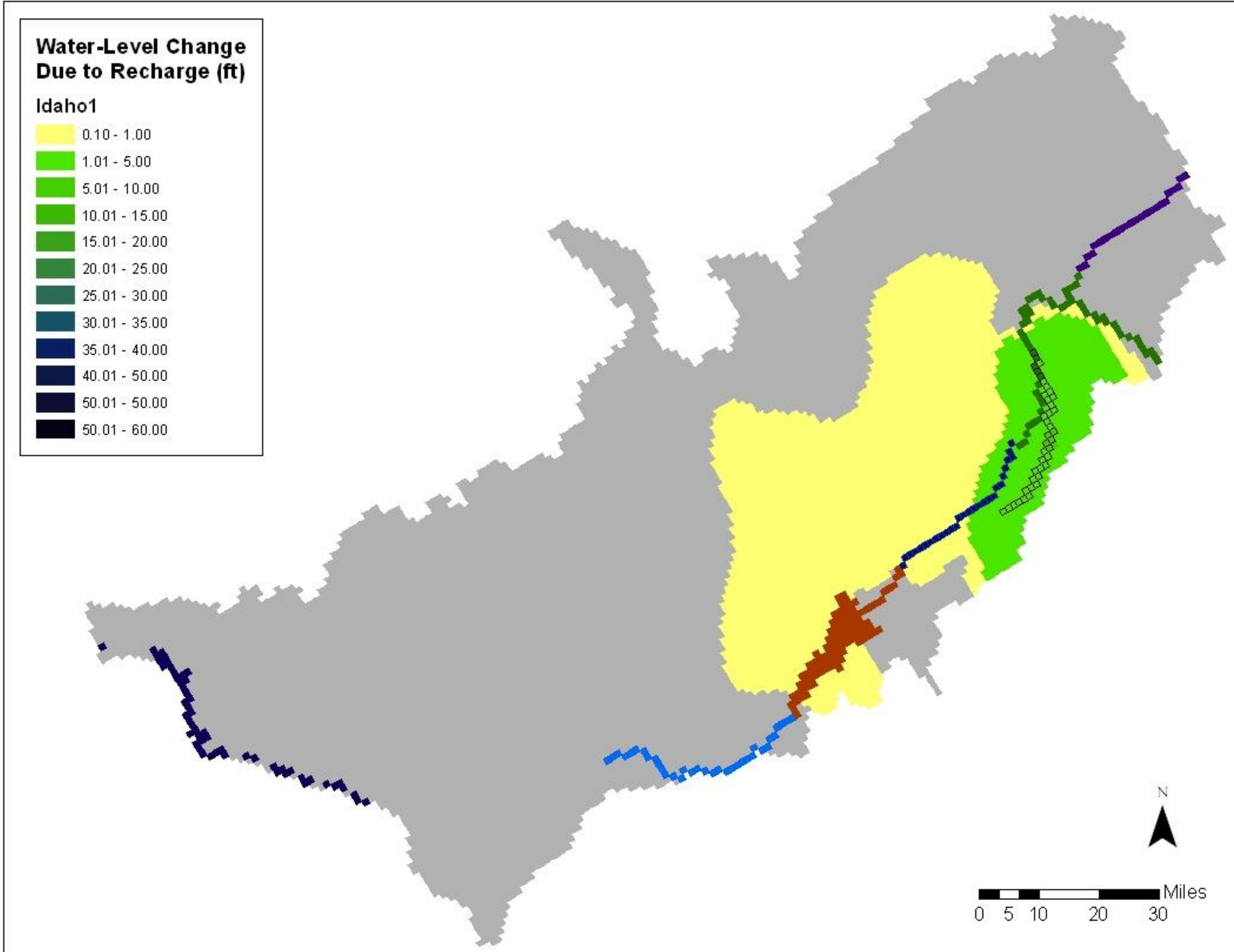
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Idaho1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
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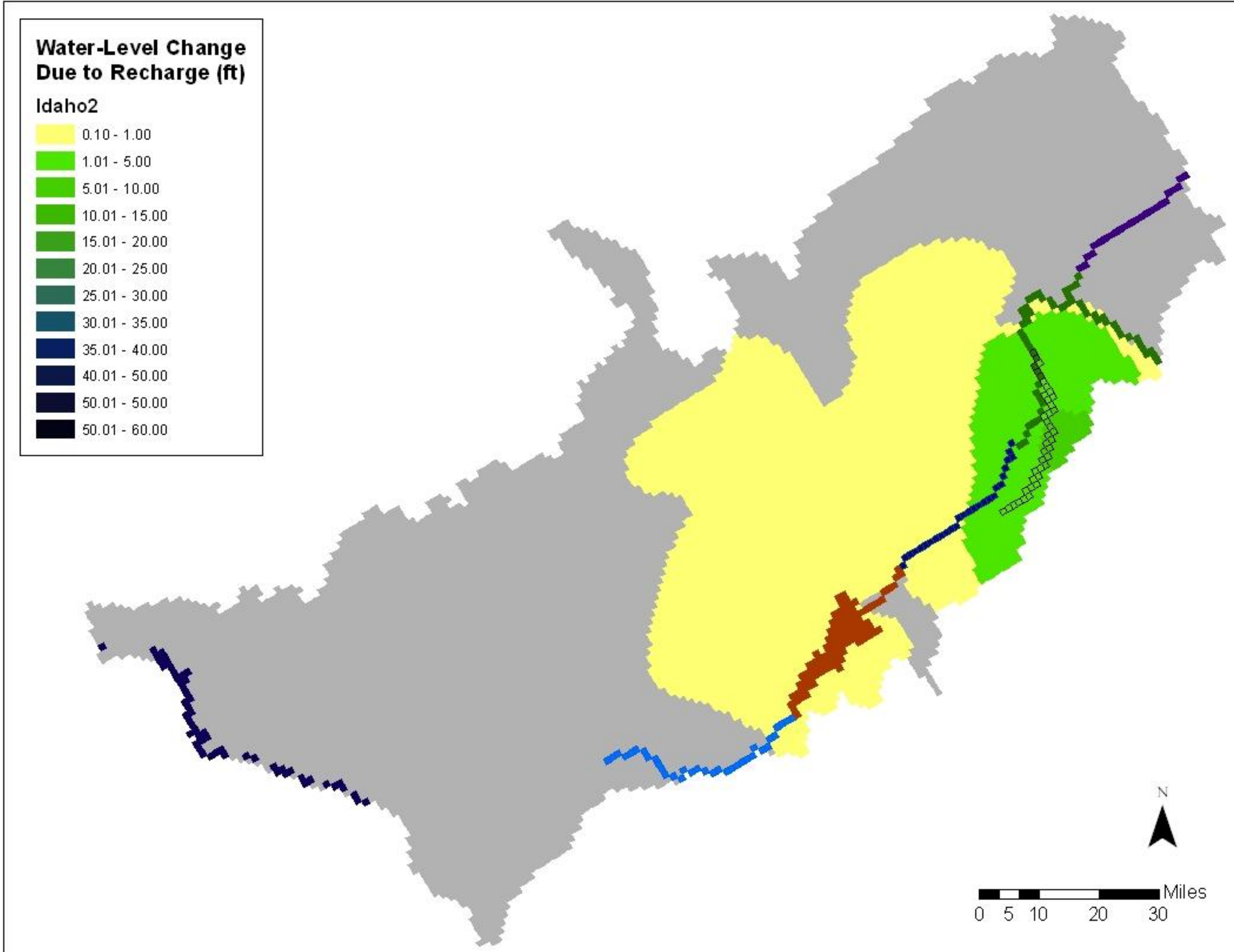
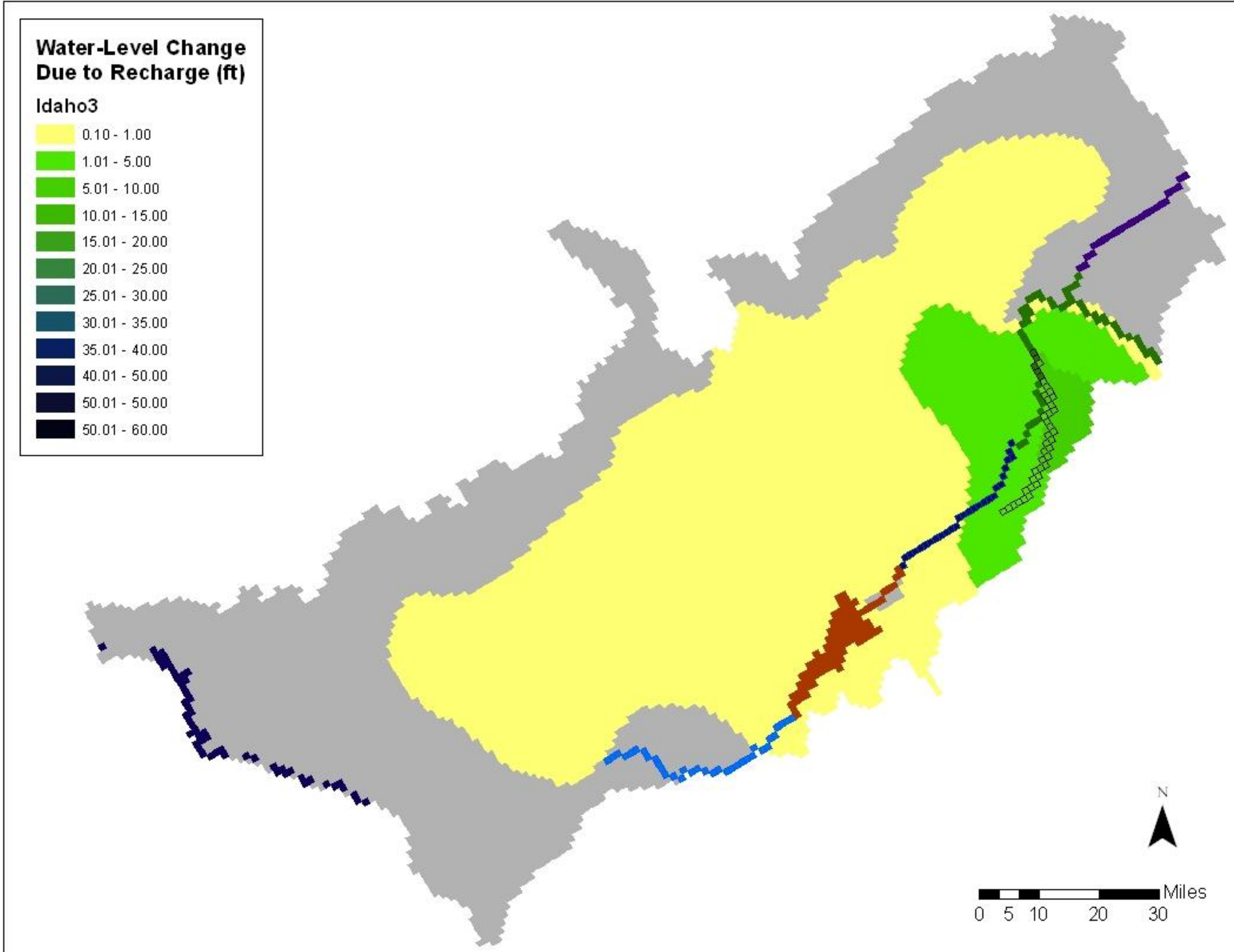
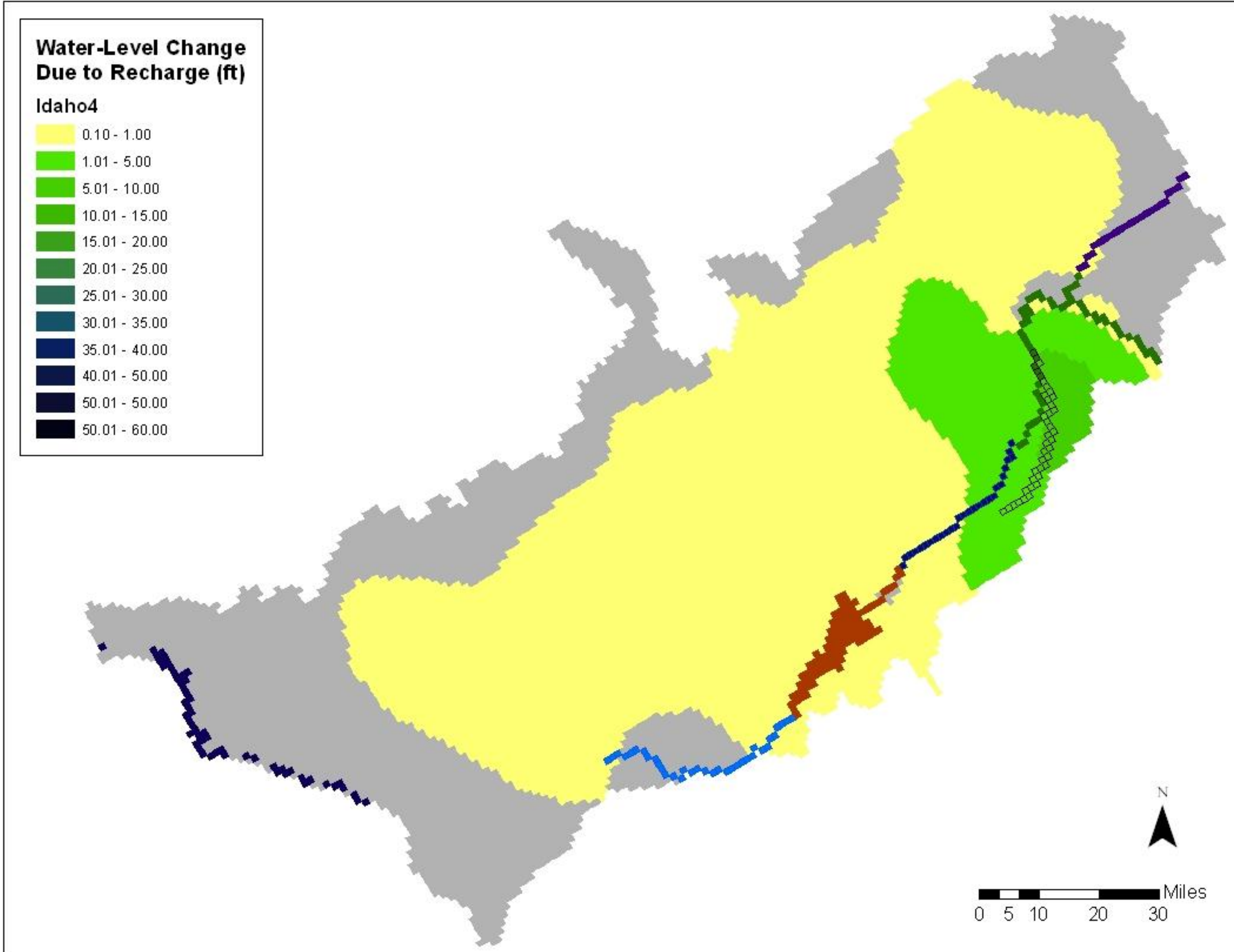
50.01 - 60.00
N
Miles
0 5 10 20 30

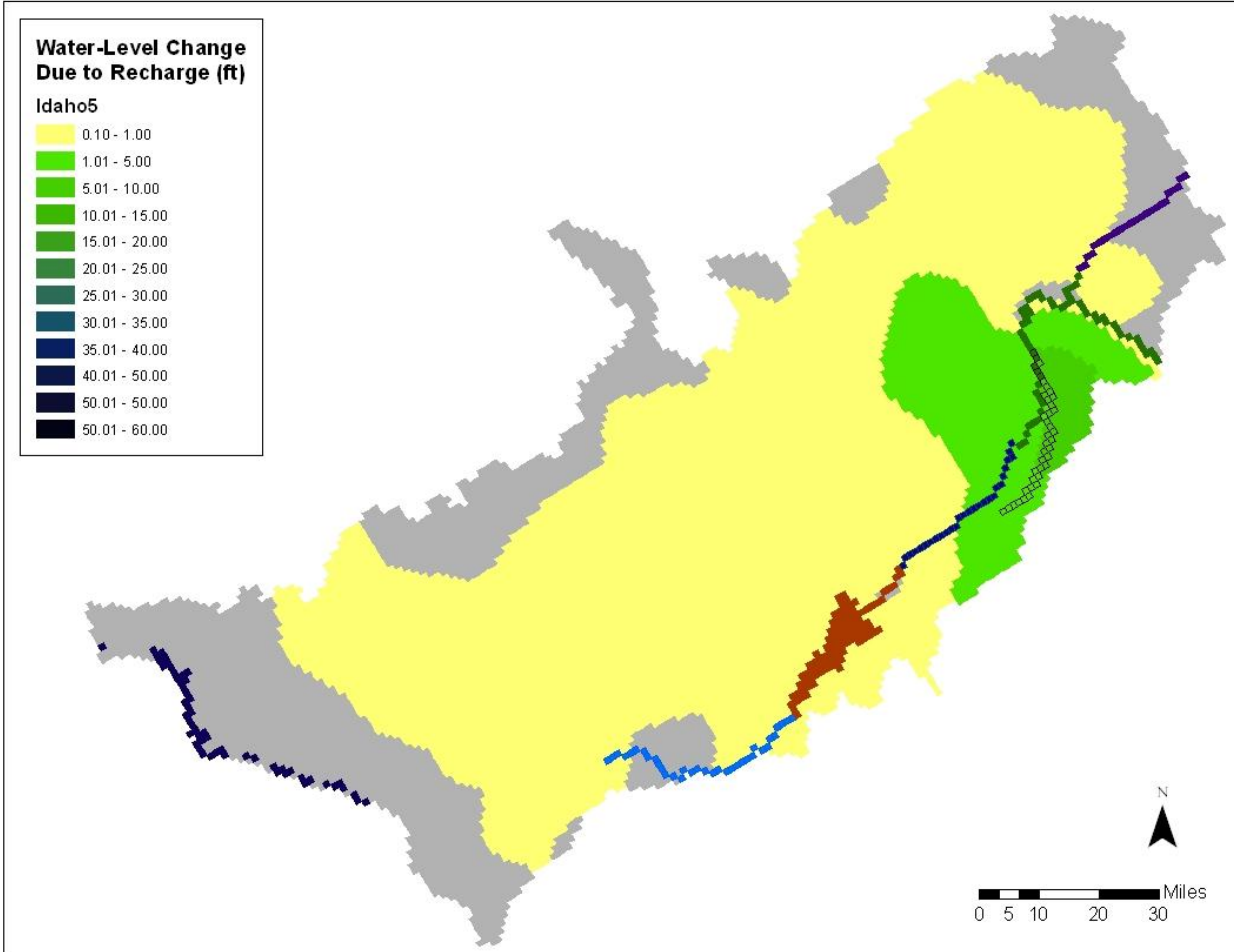


Water-Level Change
Due to Recharge (ft)
Idaho2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

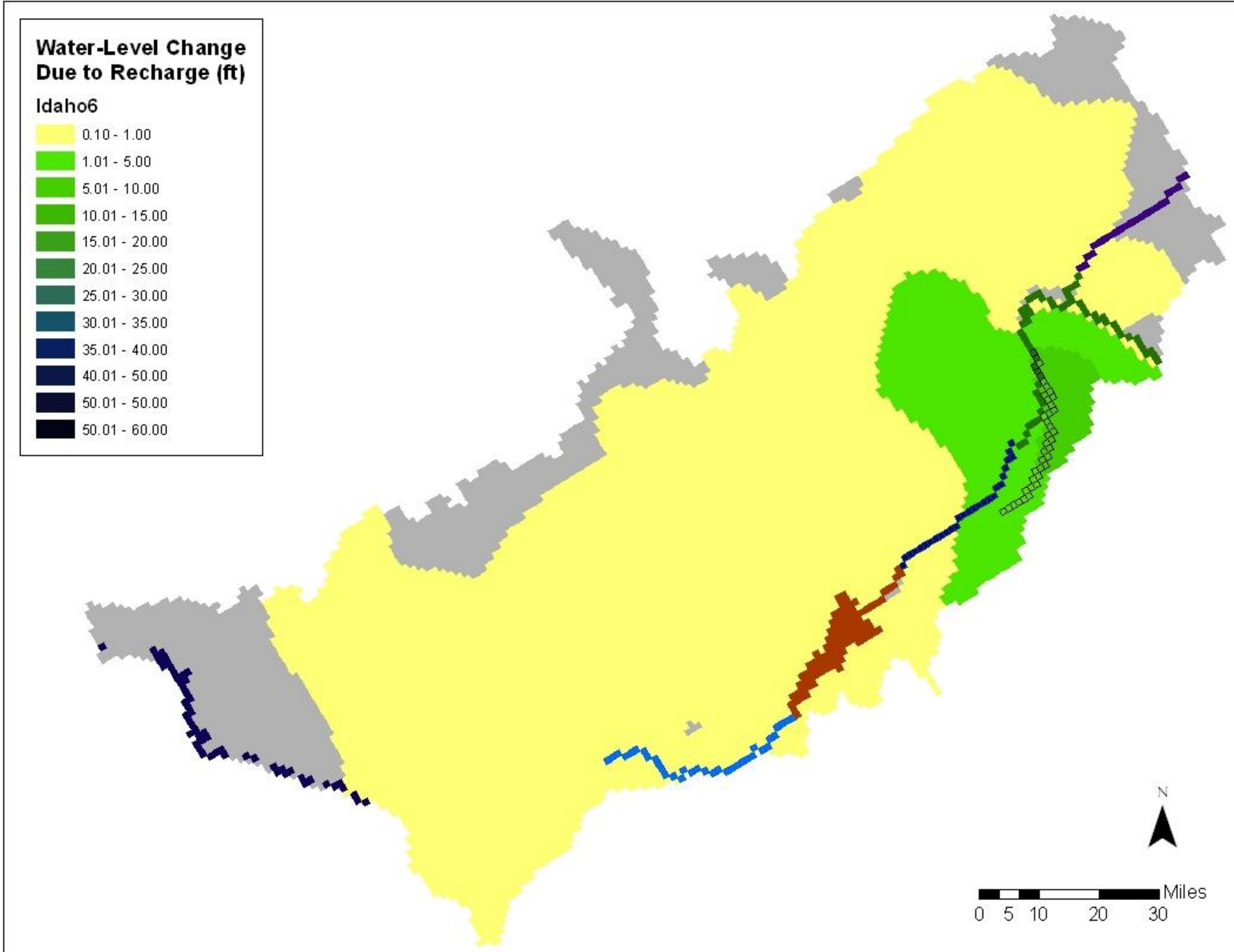

Water-Level Change
Due to Recharge (ft)
Idaho3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
Idaho4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
Idaho5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
Idaho6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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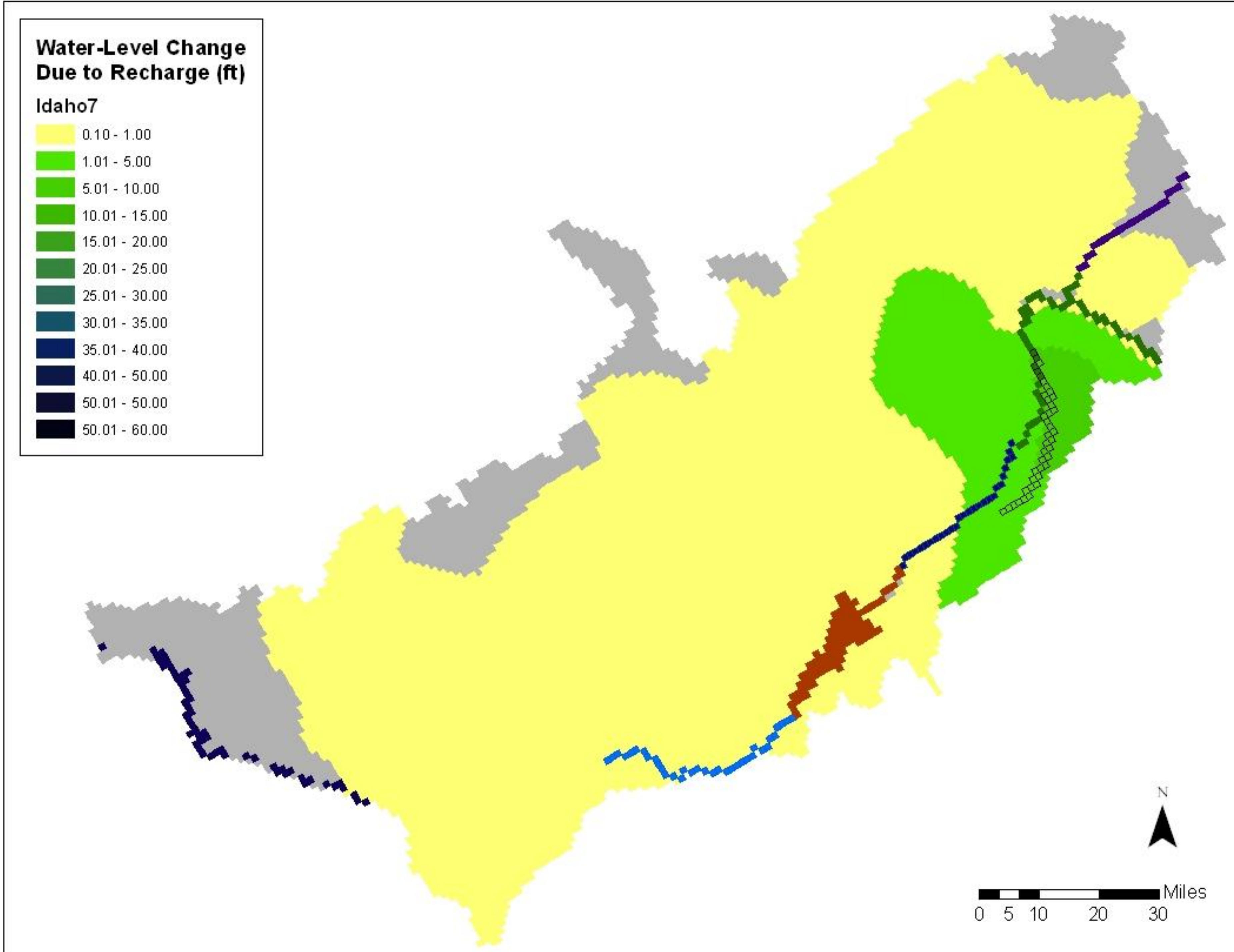
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Idaho7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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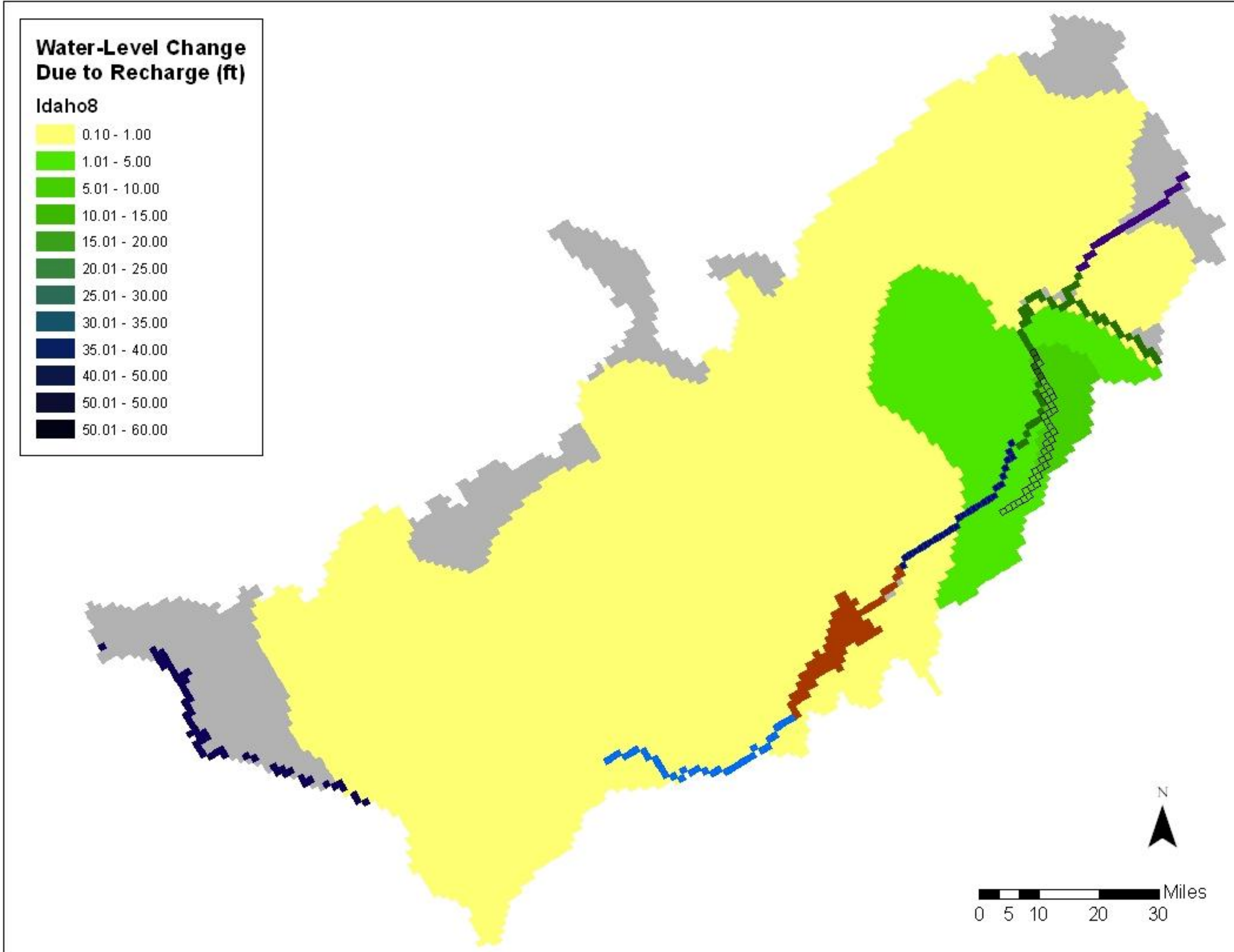
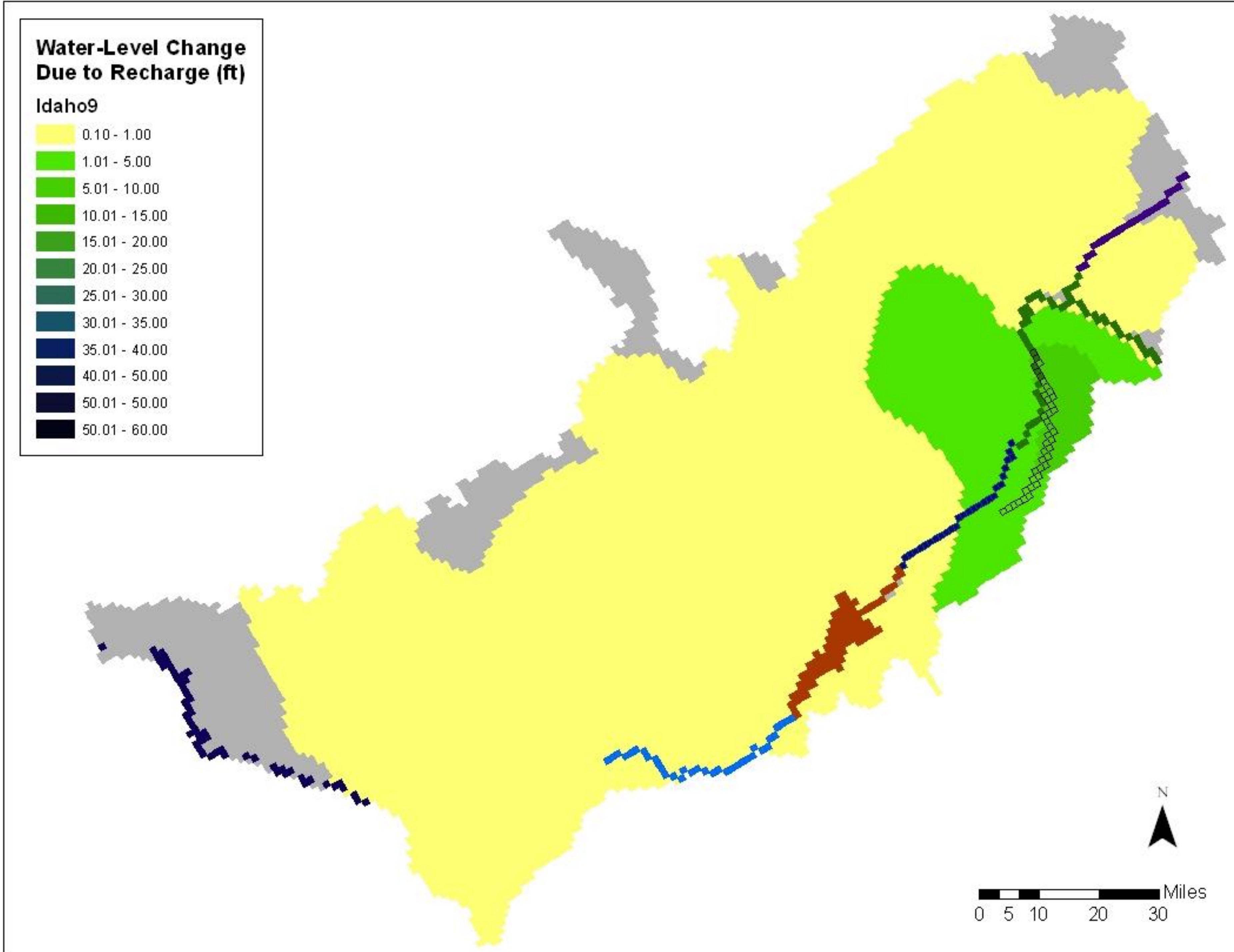
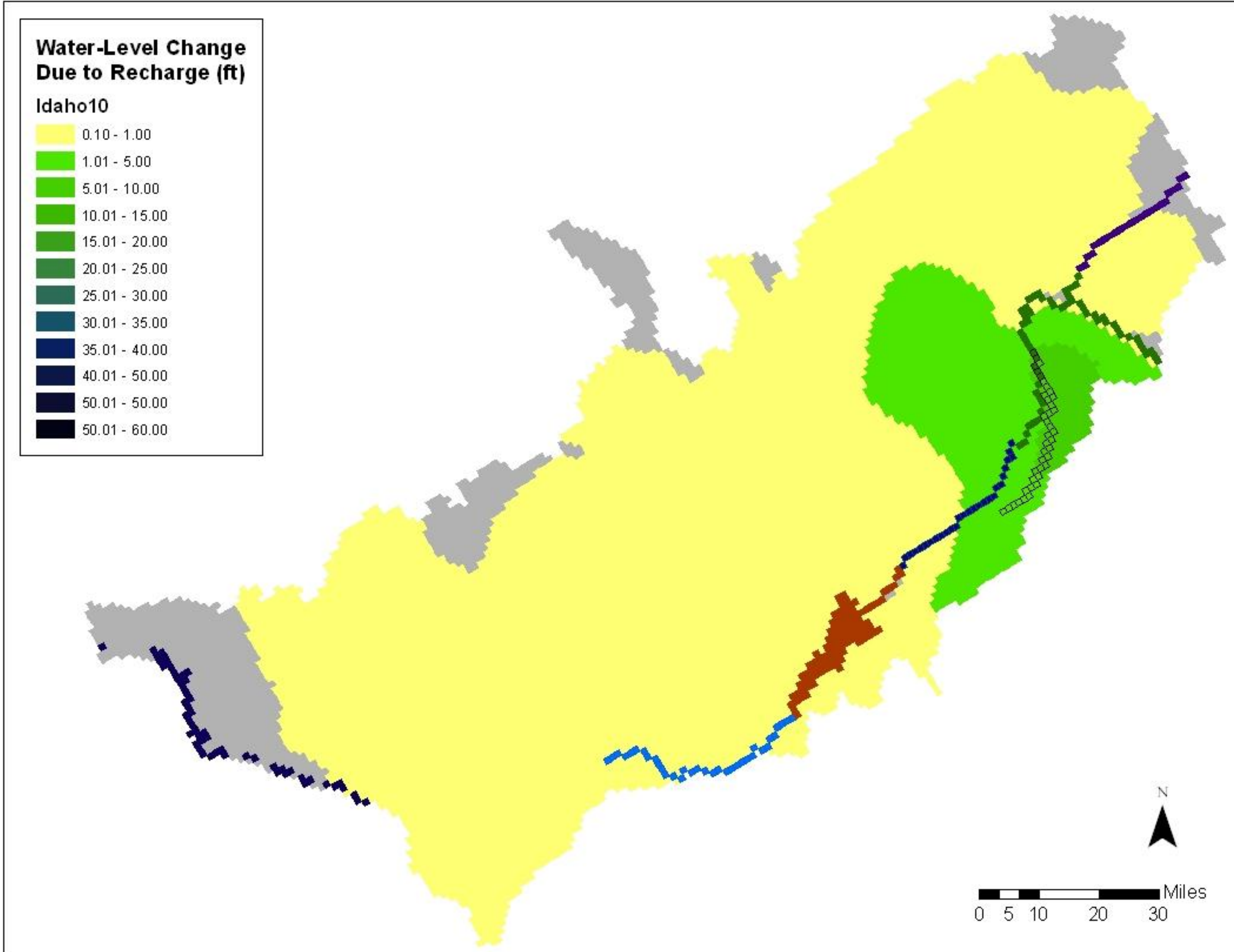
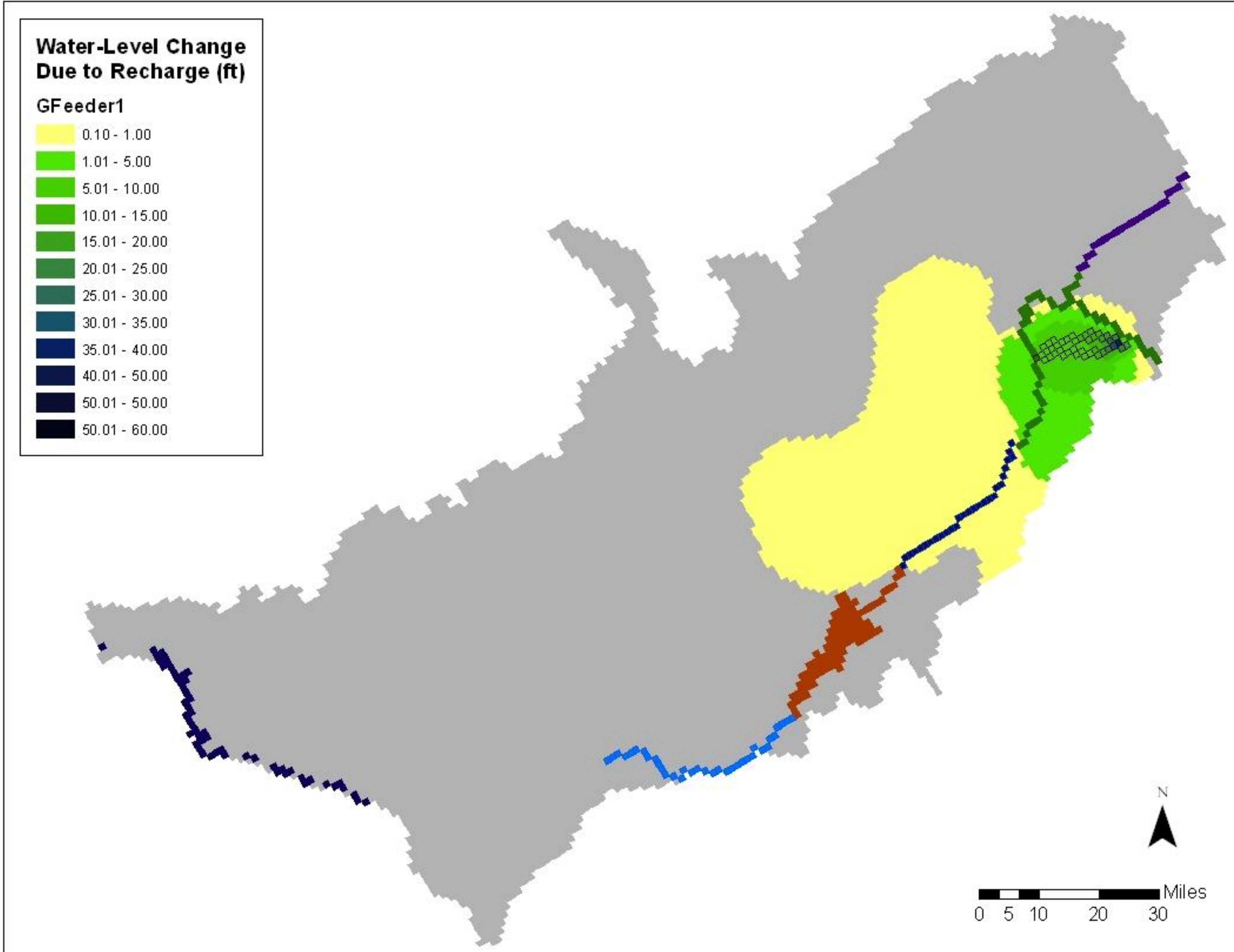
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

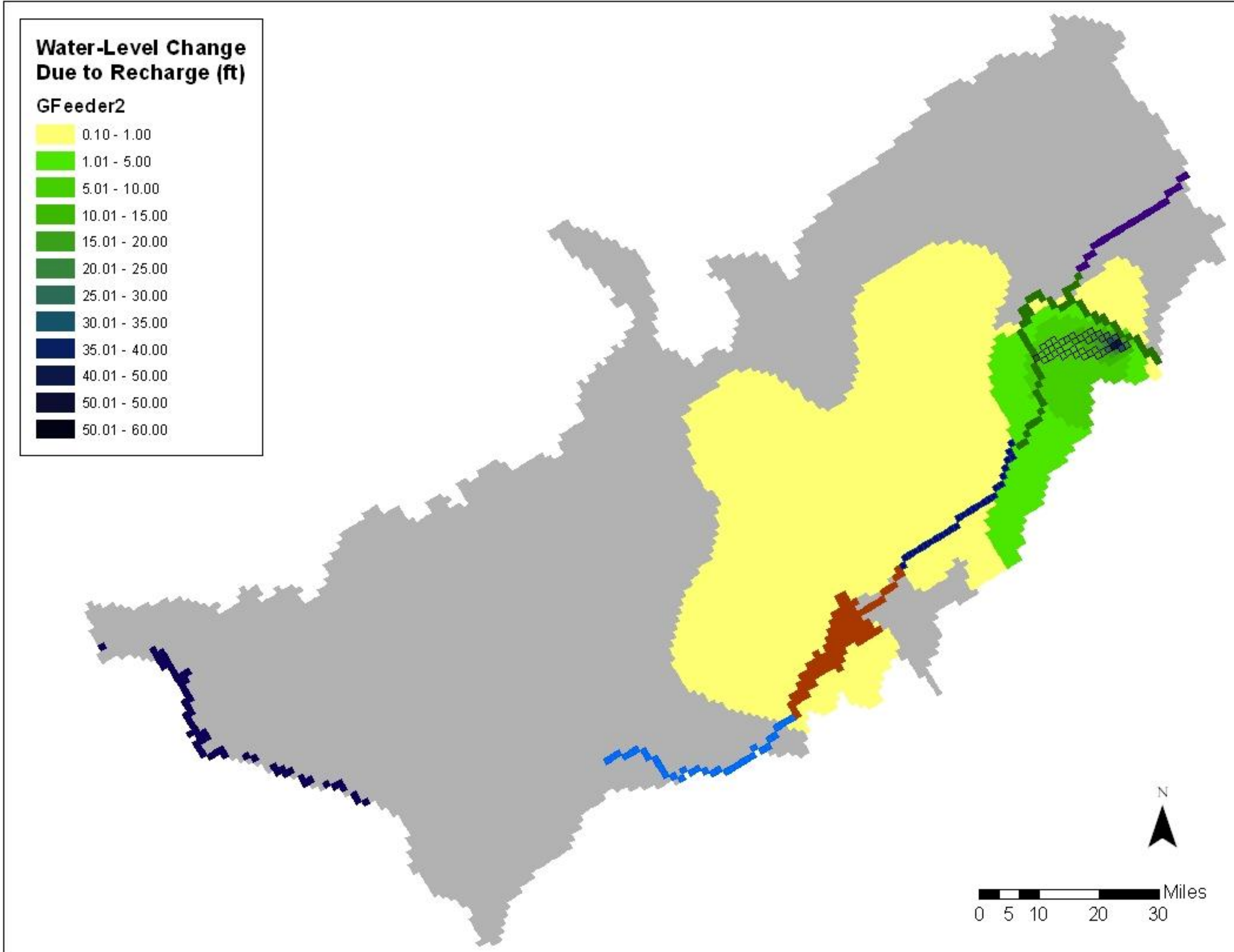

Water-Level Change Due to Recharge (ft)
Idaho8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
Idaho9
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
Idaho10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
GFeeder1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
GFeeder2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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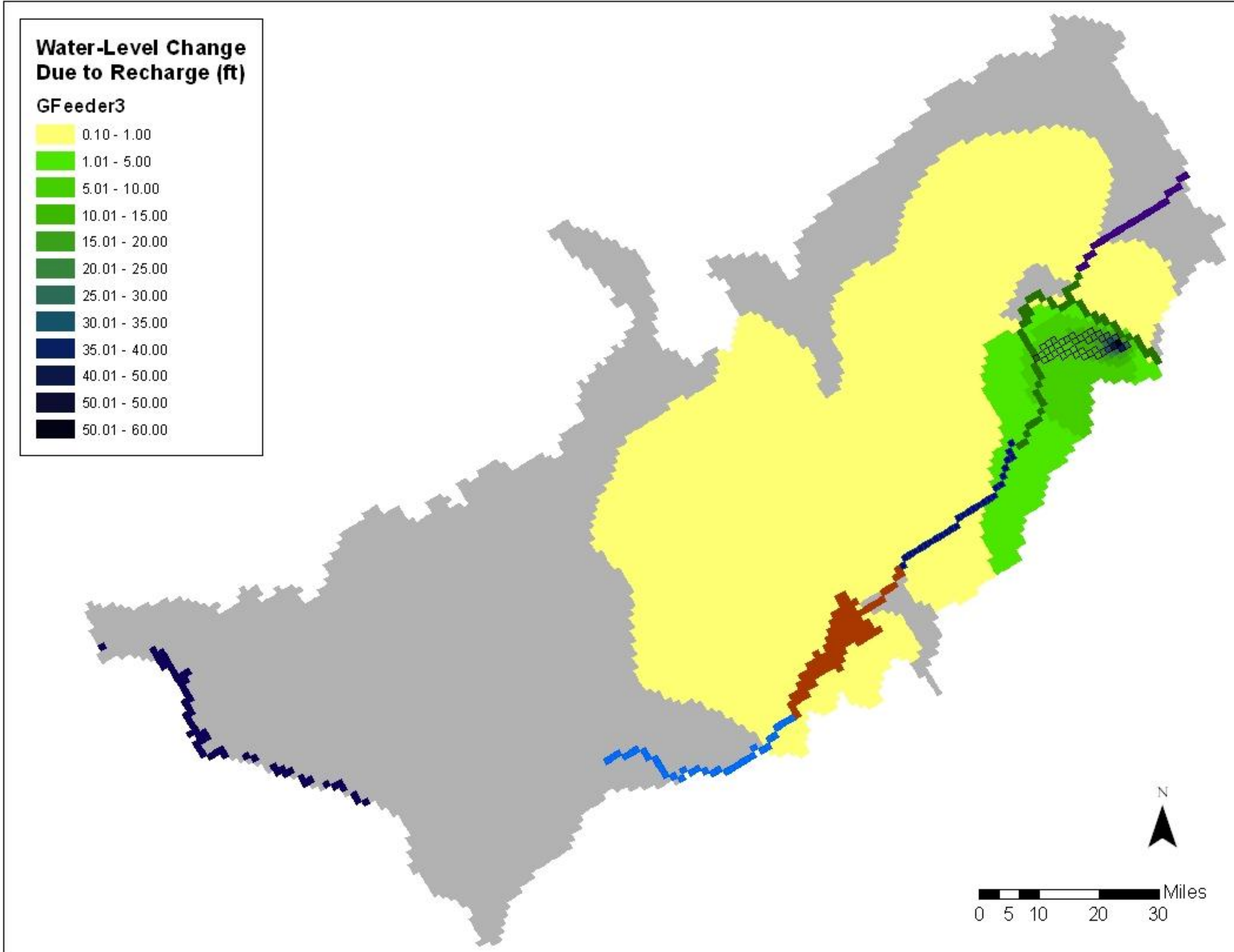
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
GFeeder3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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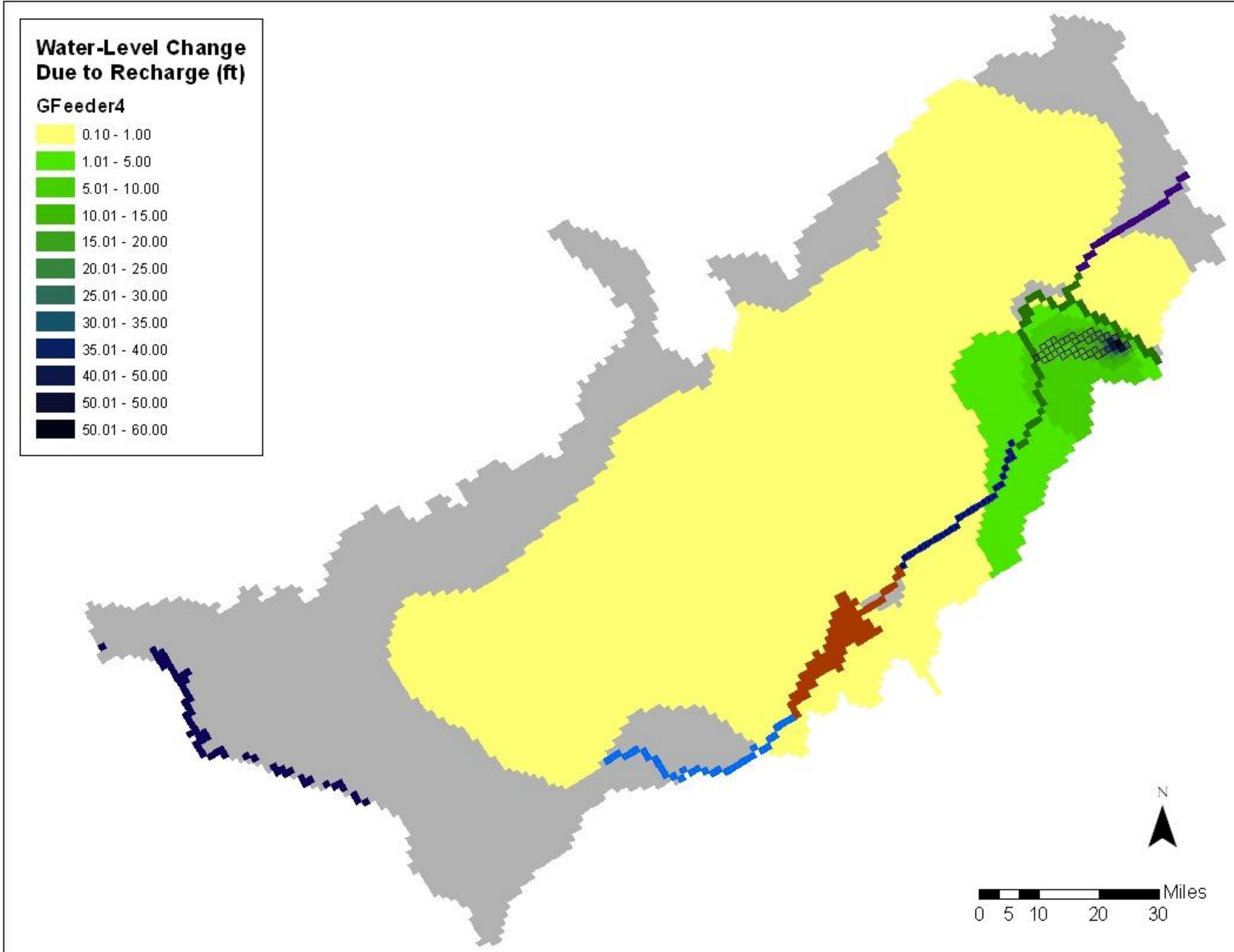
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
GFeeder4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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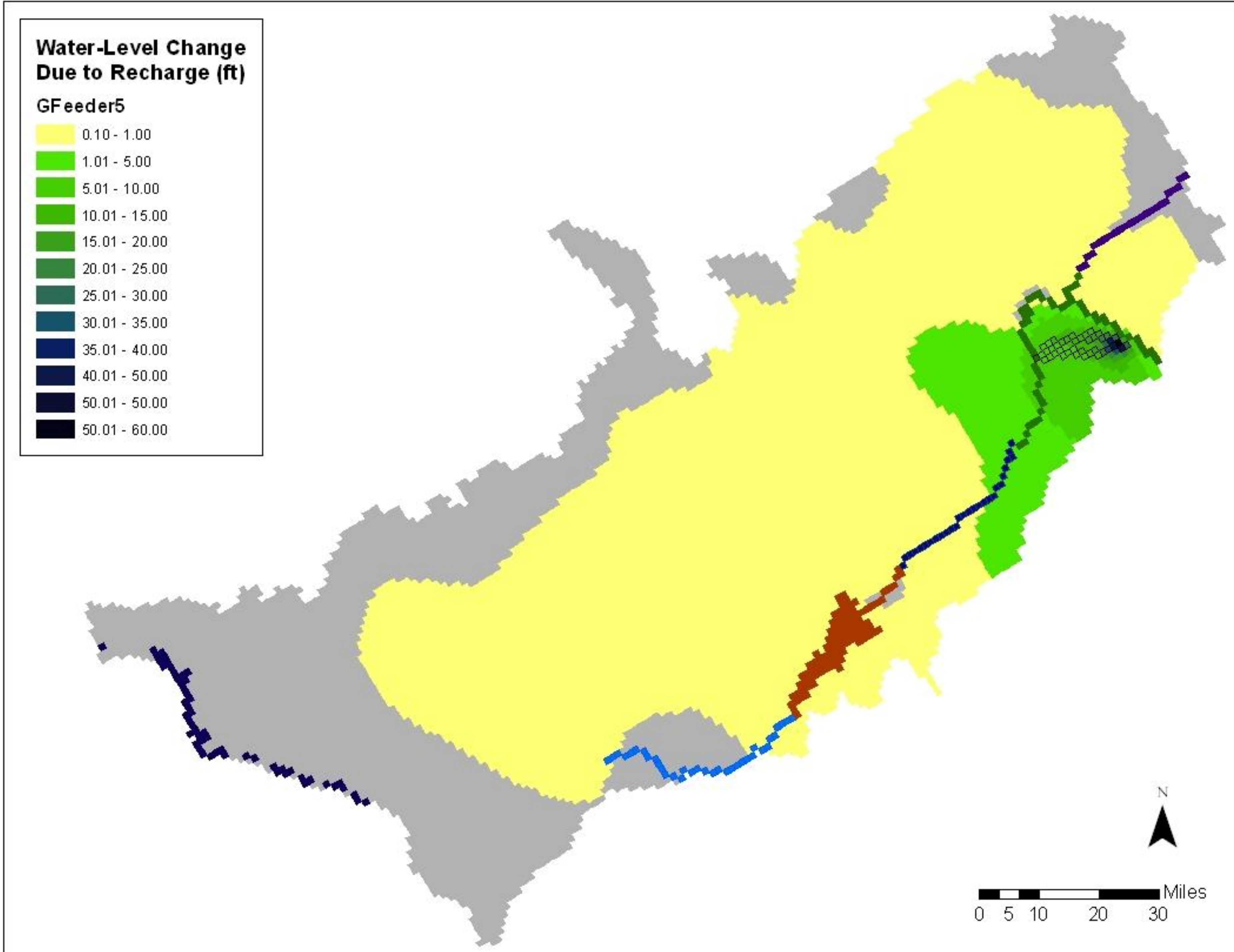
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
GFeeder5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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40.01 - 50.00
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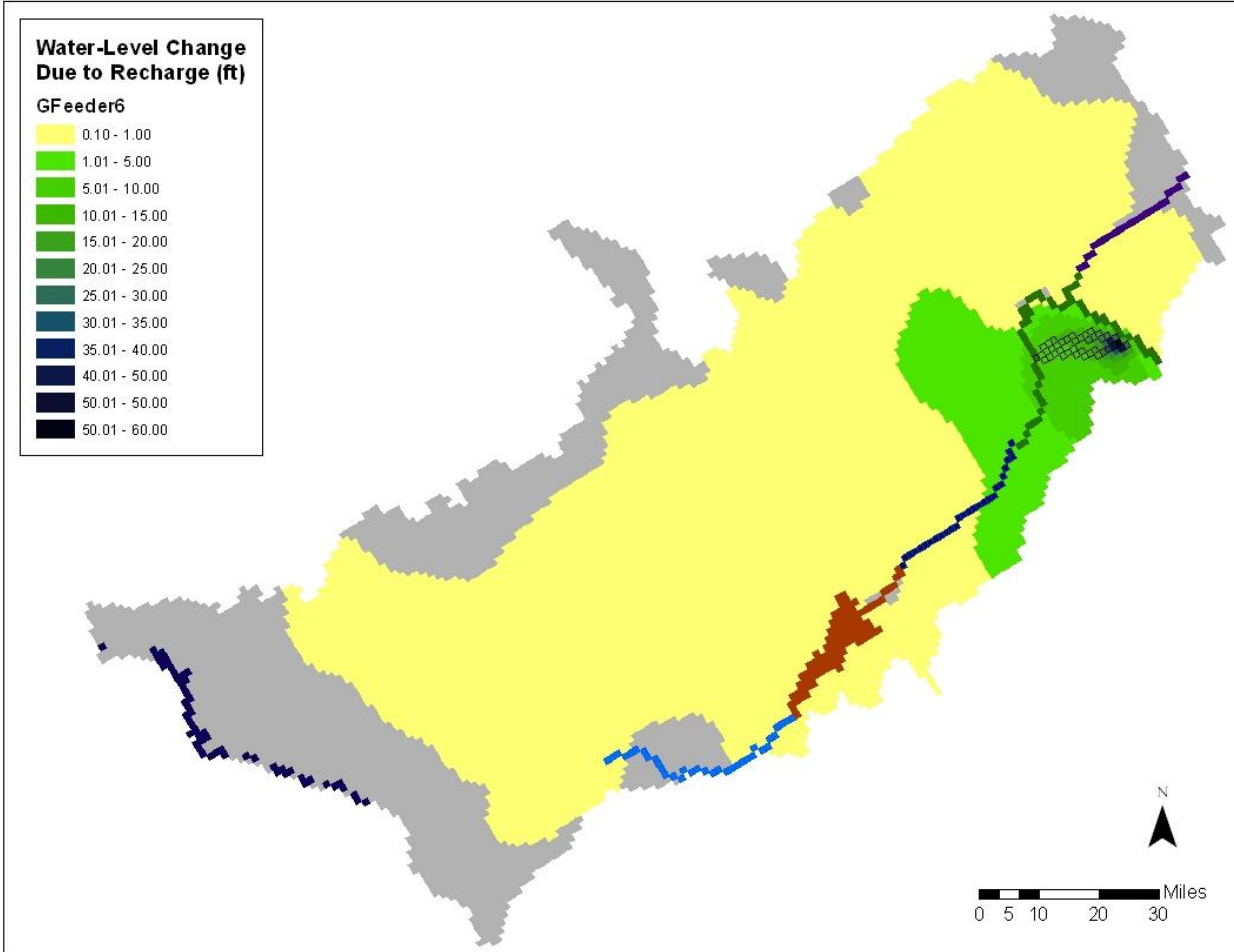
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
GFeeder6
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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40.01 - 50.00
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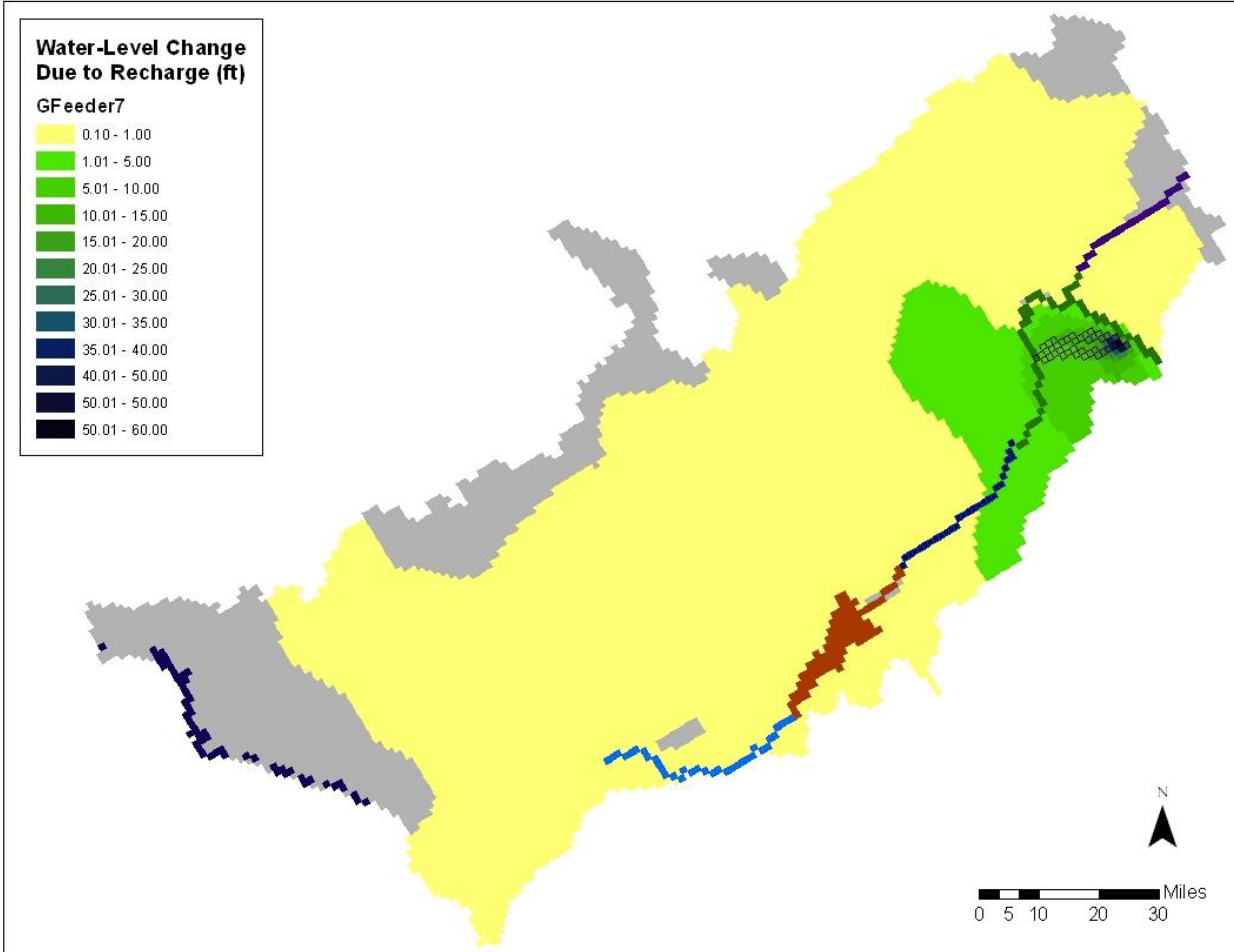
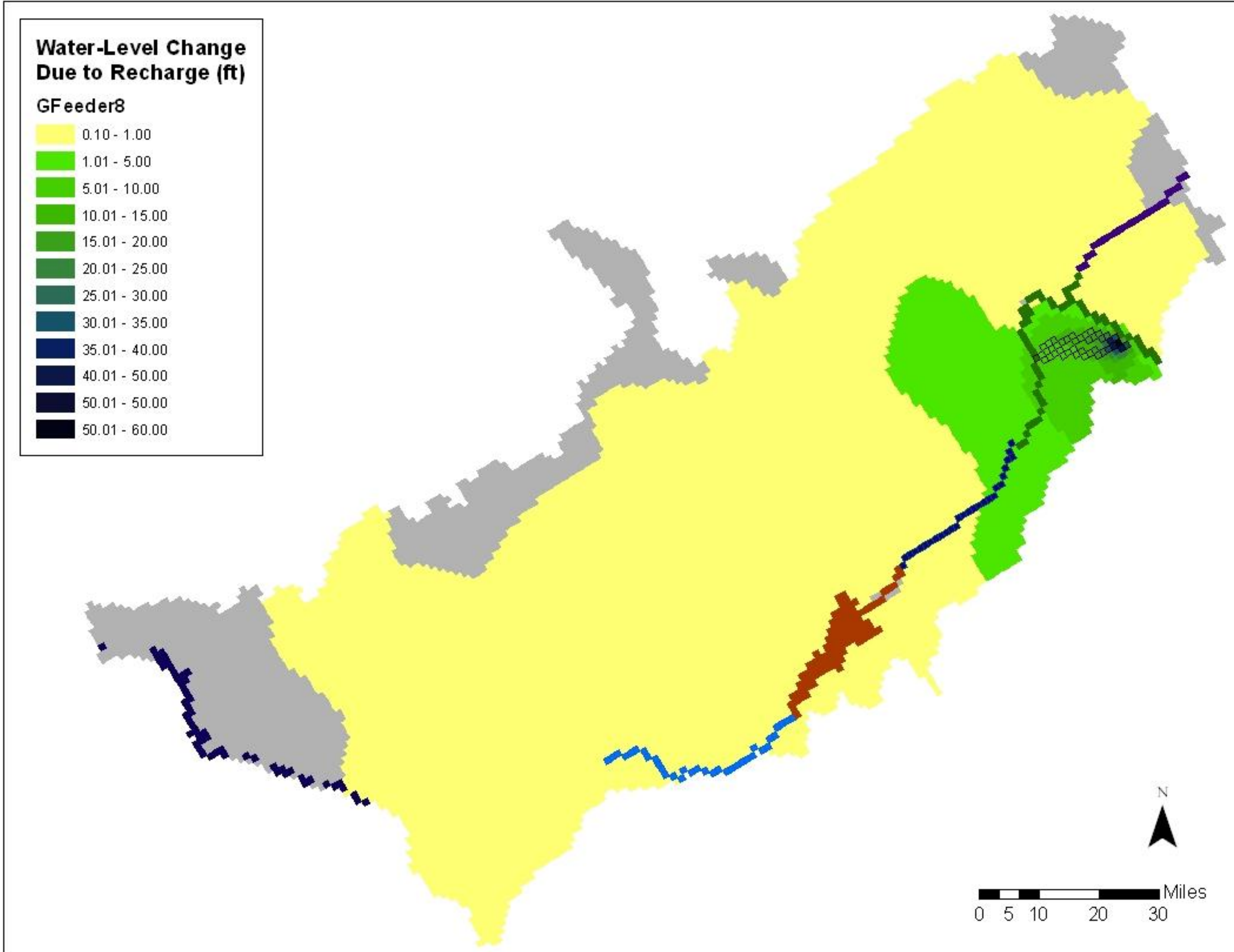
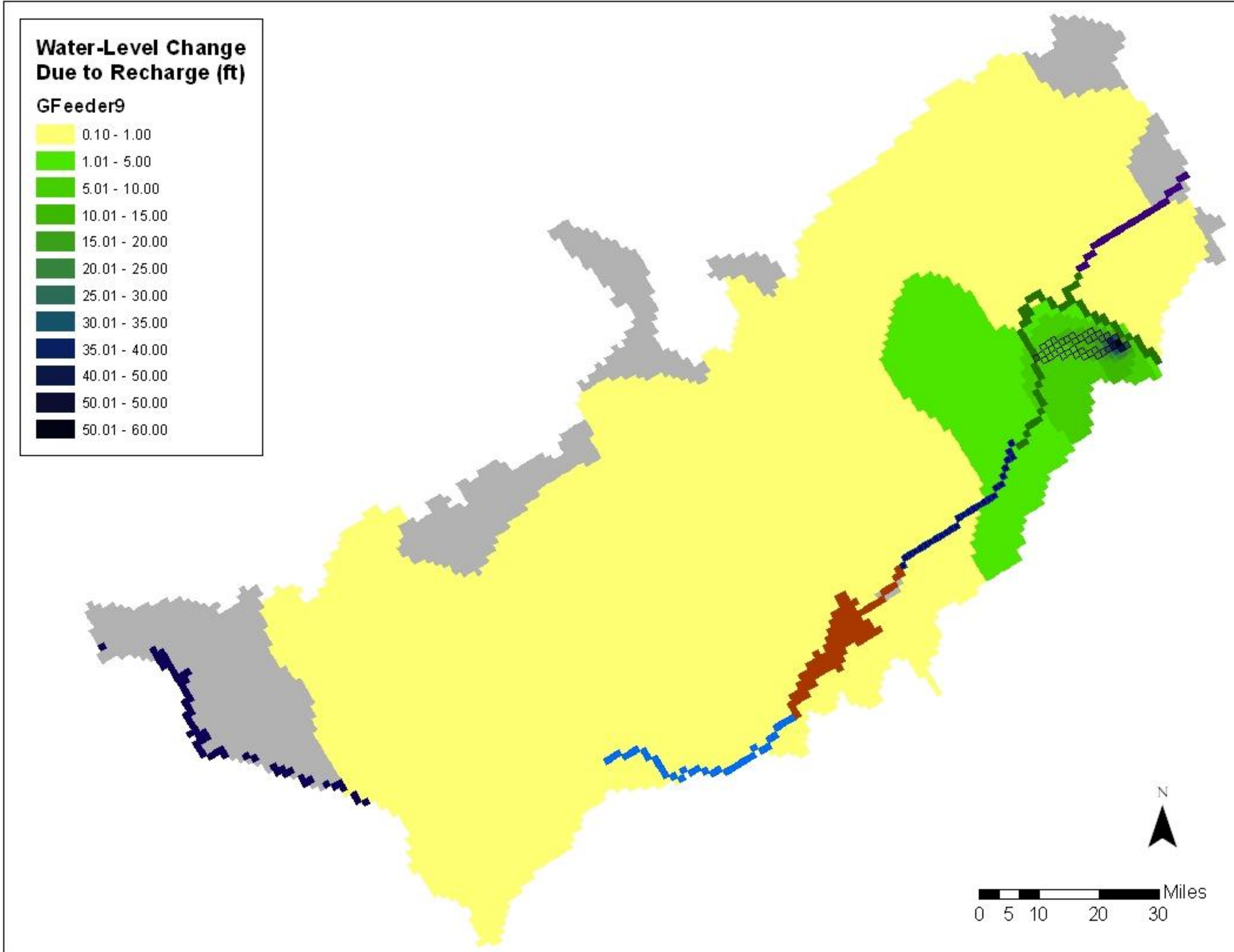
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
GFeeder7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
GFeeder8
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
GFeeder9
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1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
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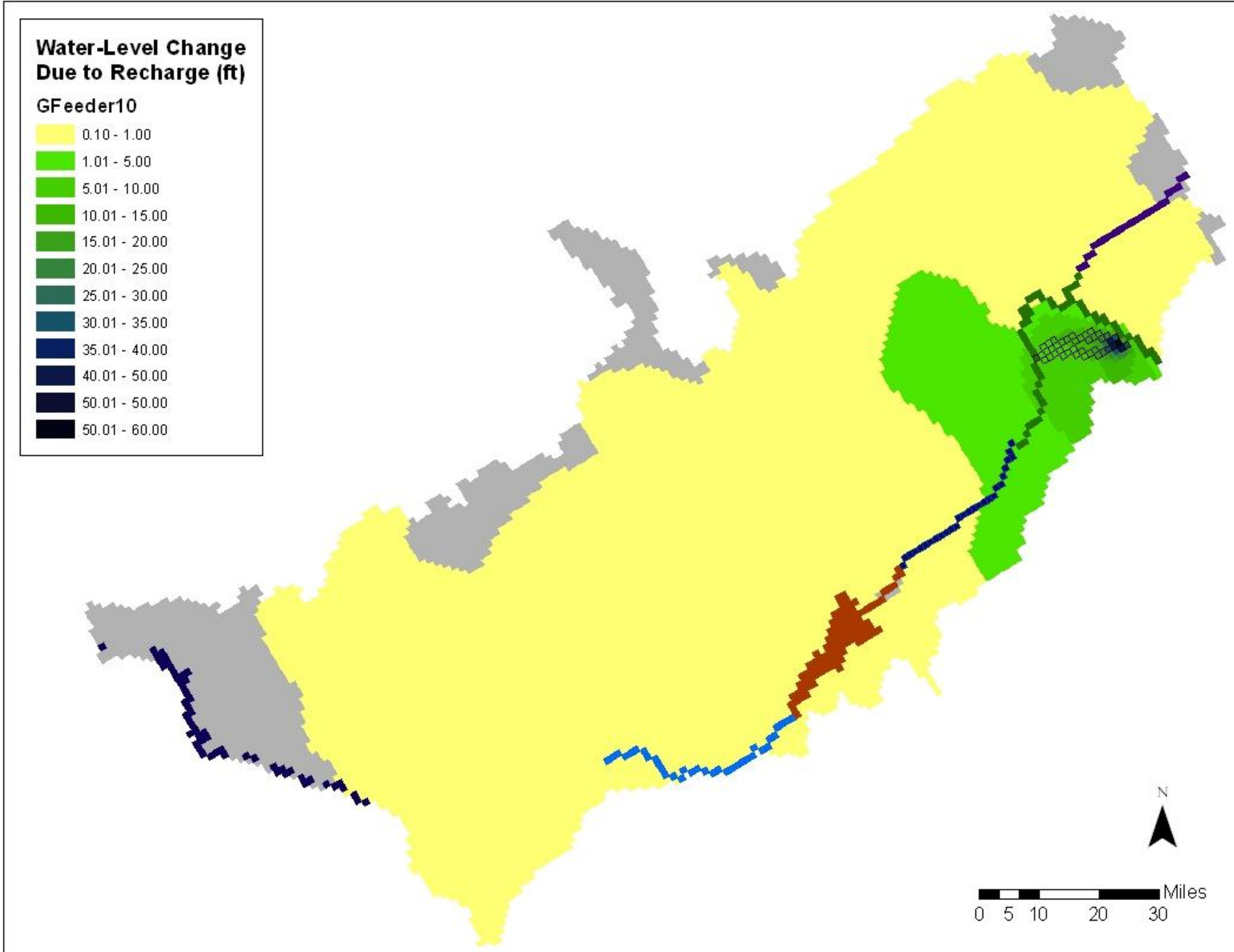
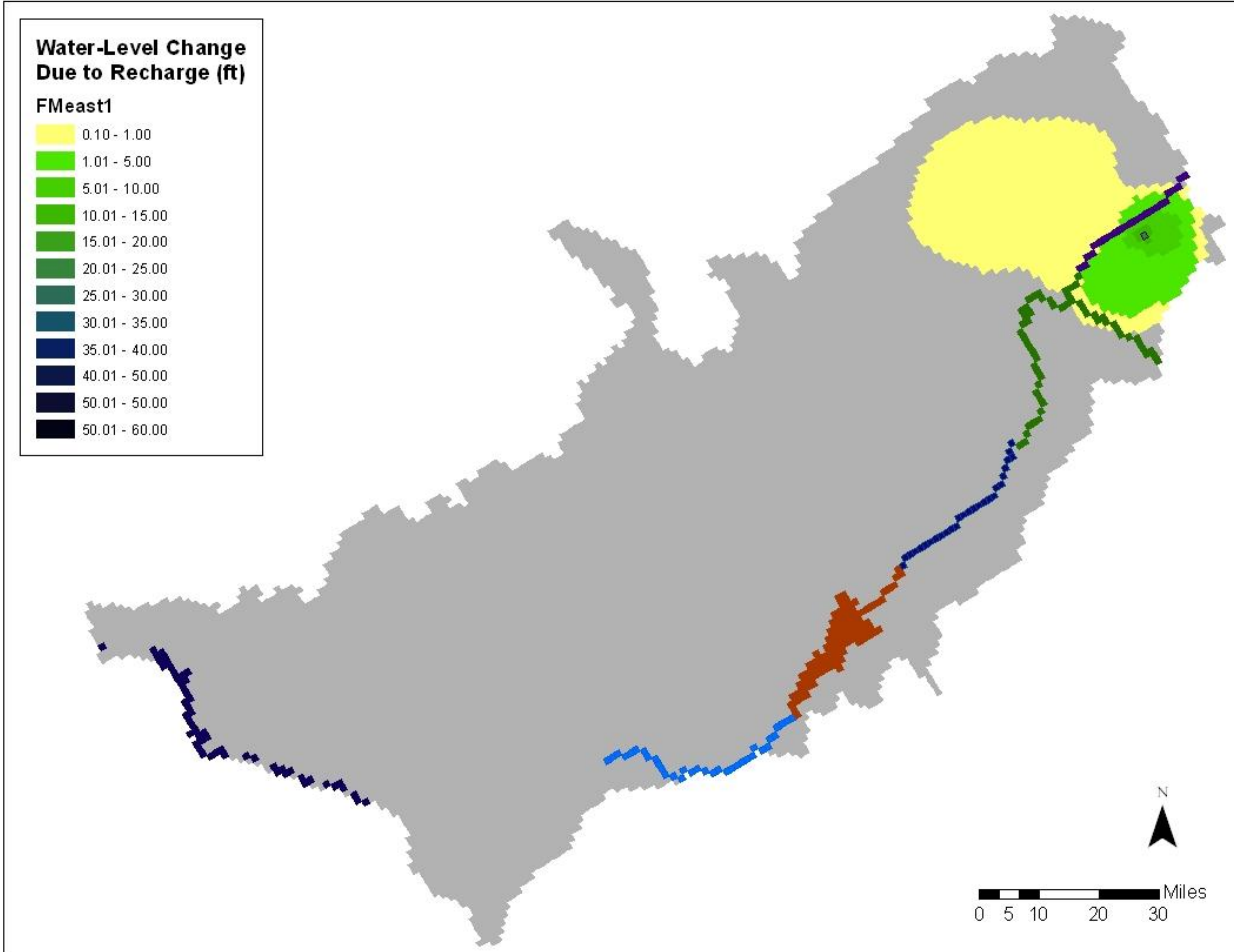
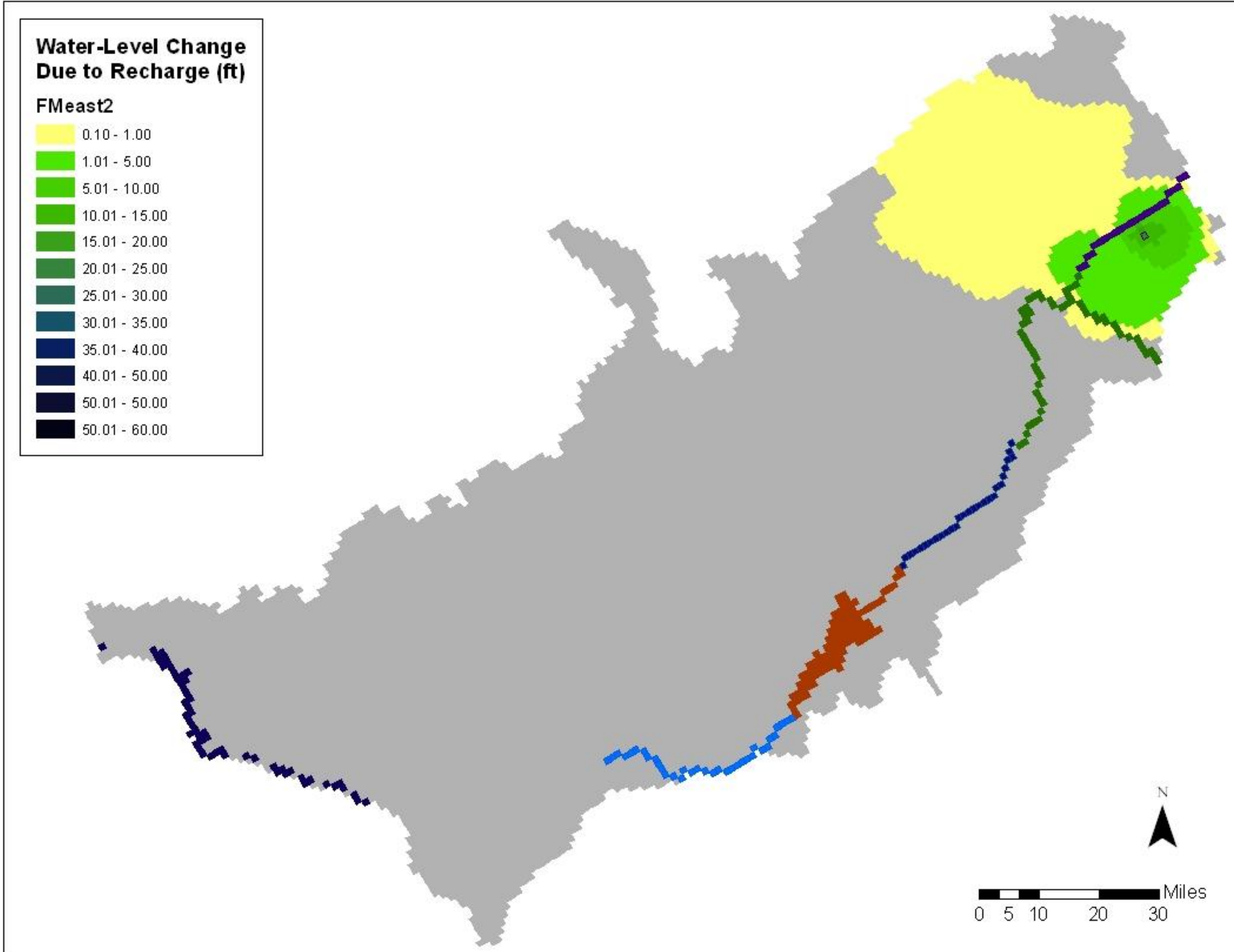
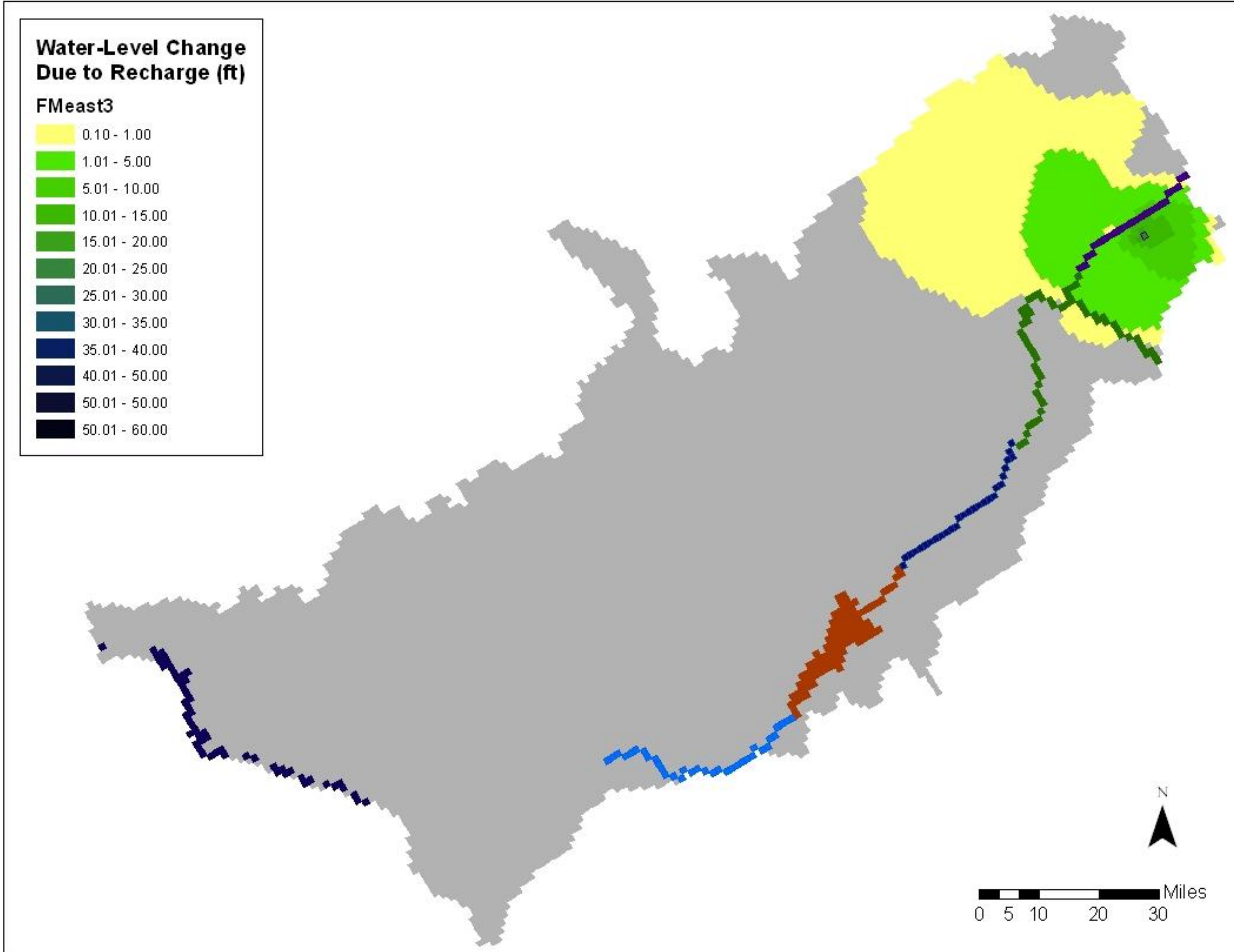
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

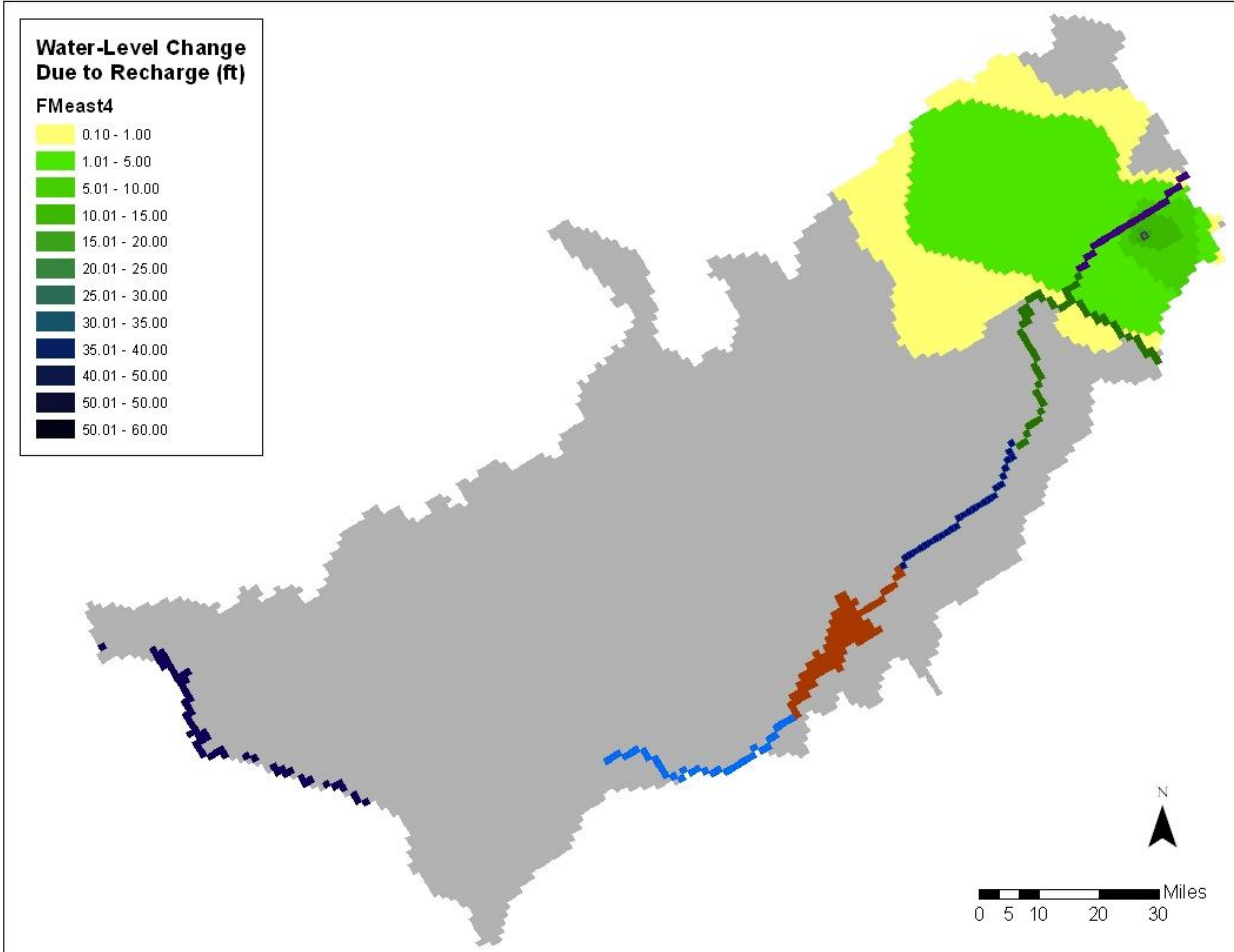

Water-Level Change
Due to Recharge (ft)
GFeeder10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
FMeast1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
FMeast2
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
FMeast3
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
FMeast4
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10.01 - 15.00
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20.01 - 25.00
25.01 - 30.00
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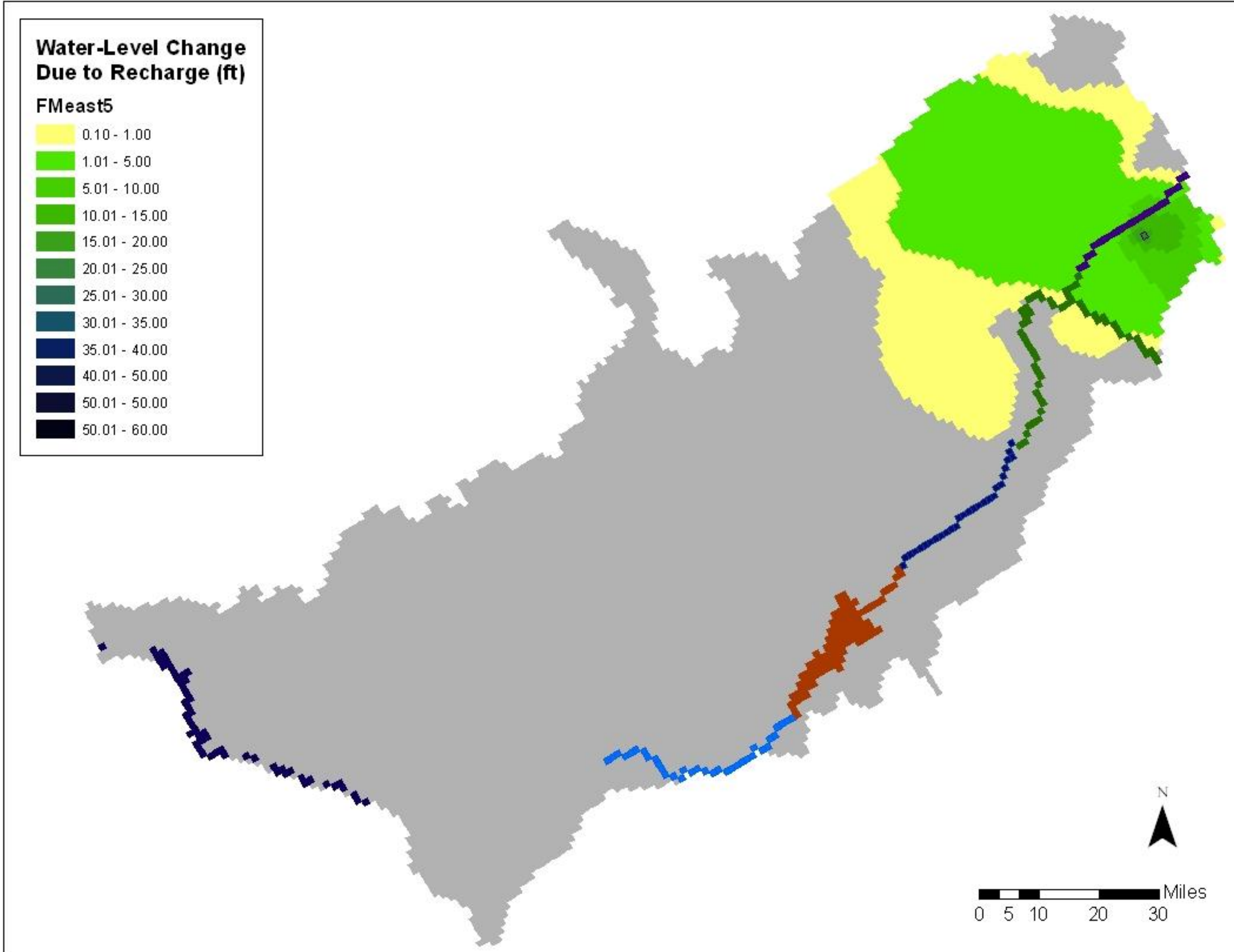
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
FMeast5
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1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
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20.01 - 25.00
25.01 - 30.00
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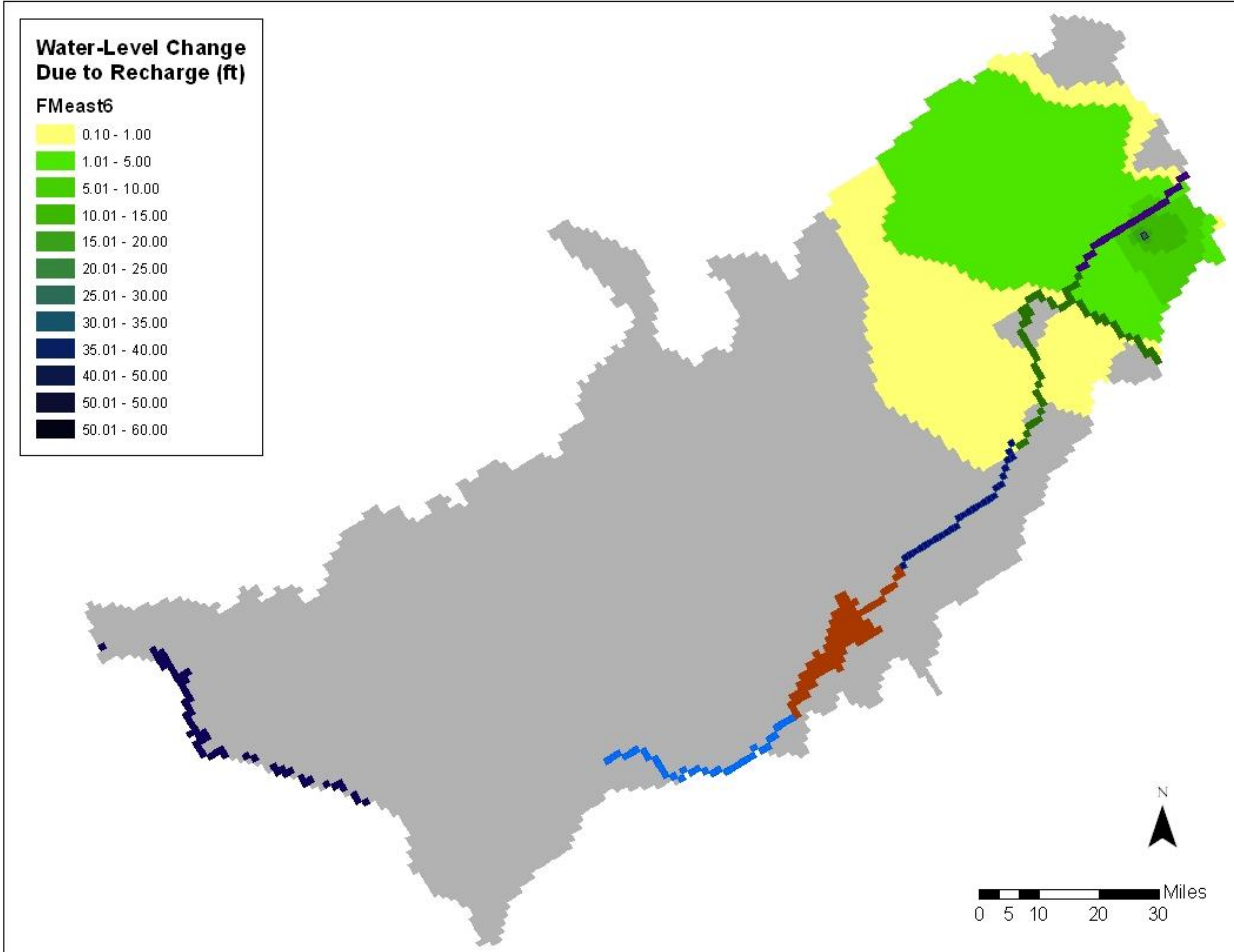
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
FMeast6
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10.01 - 15.00
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20.01 - 25.00
25.01 - 30.00
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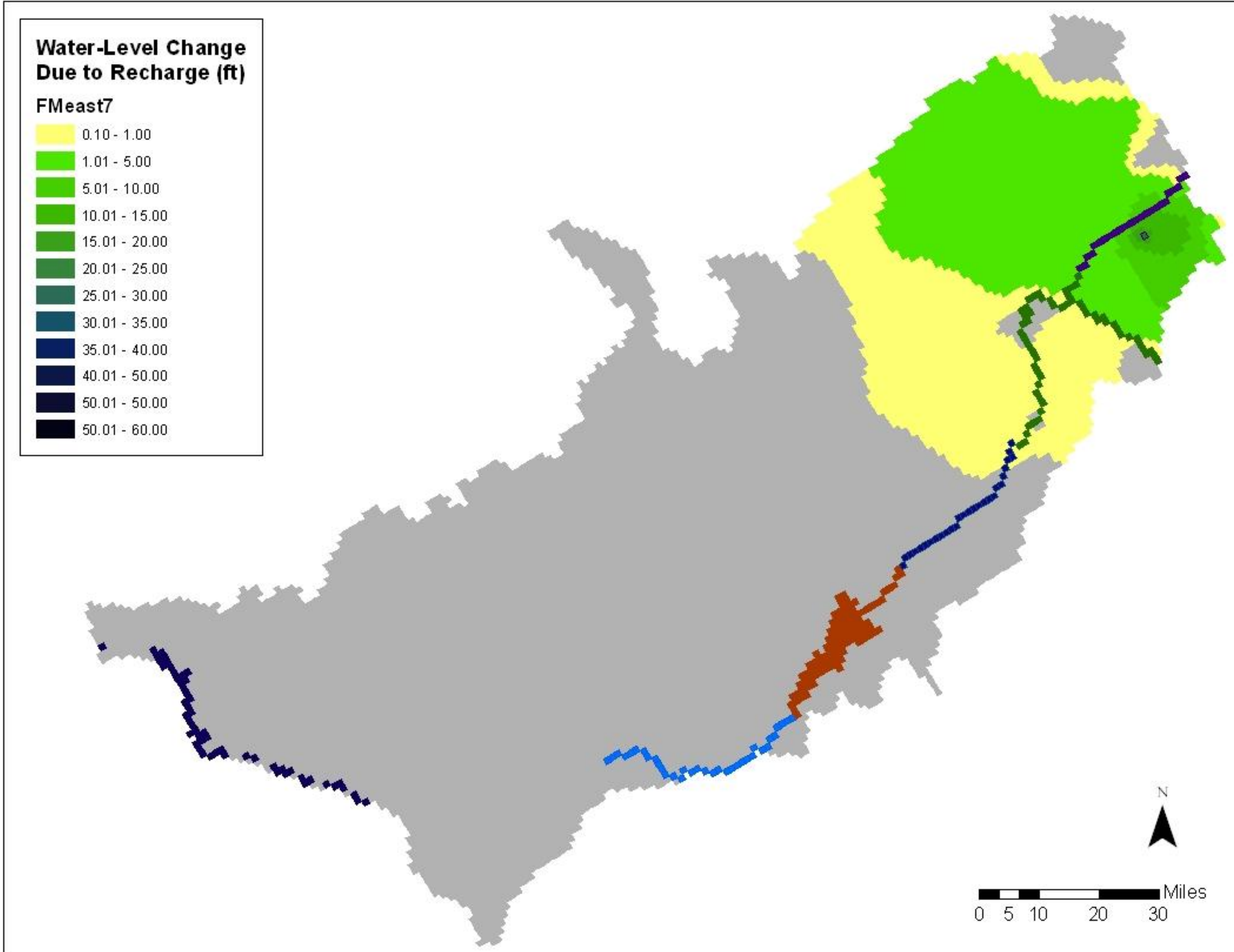
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
FMeast7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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40.01 - 50.00
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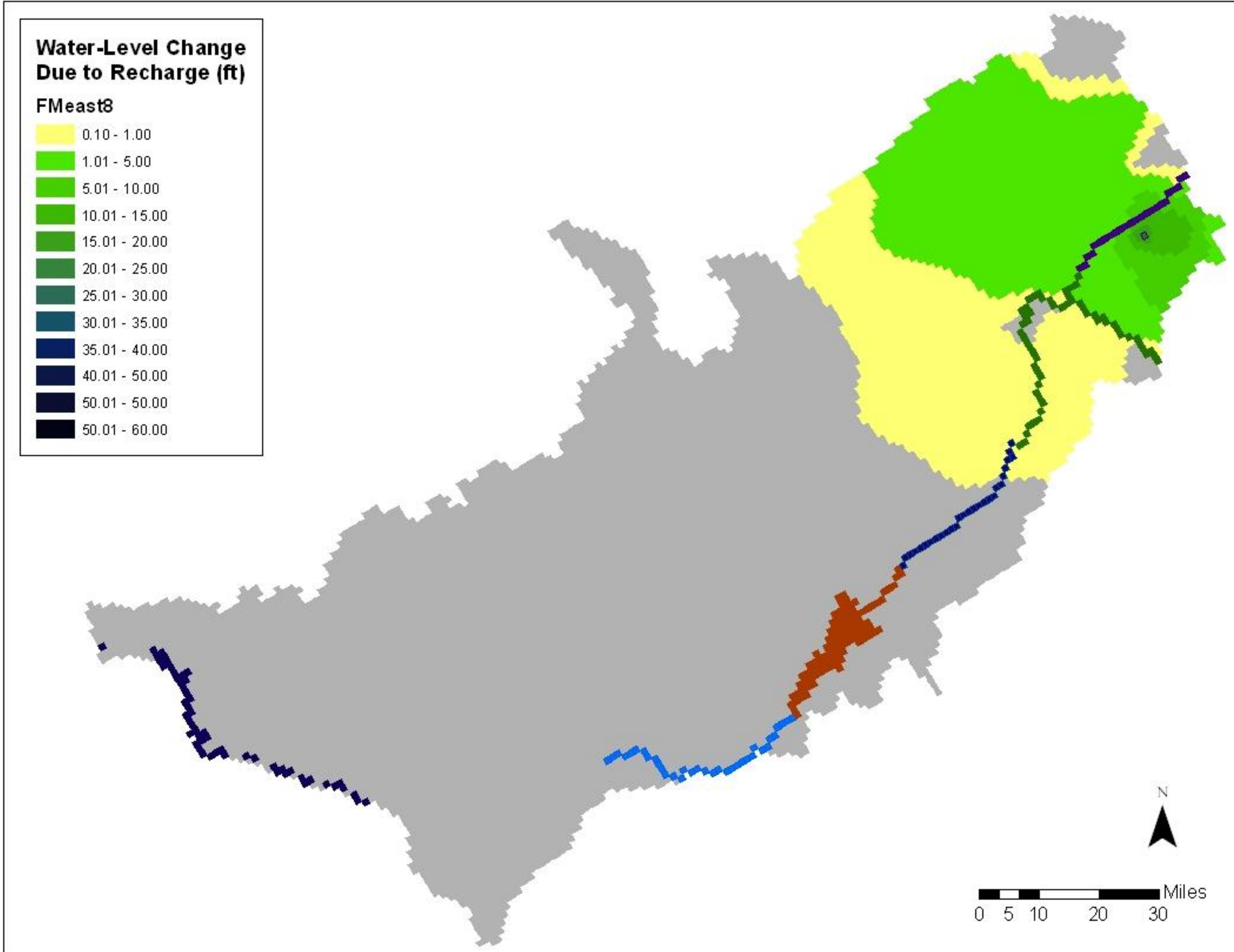
50.01 - 60.00
N
Miles
0
5
10
20
30


Water-Level Change
Due to Recharge (ft)
FMeast8
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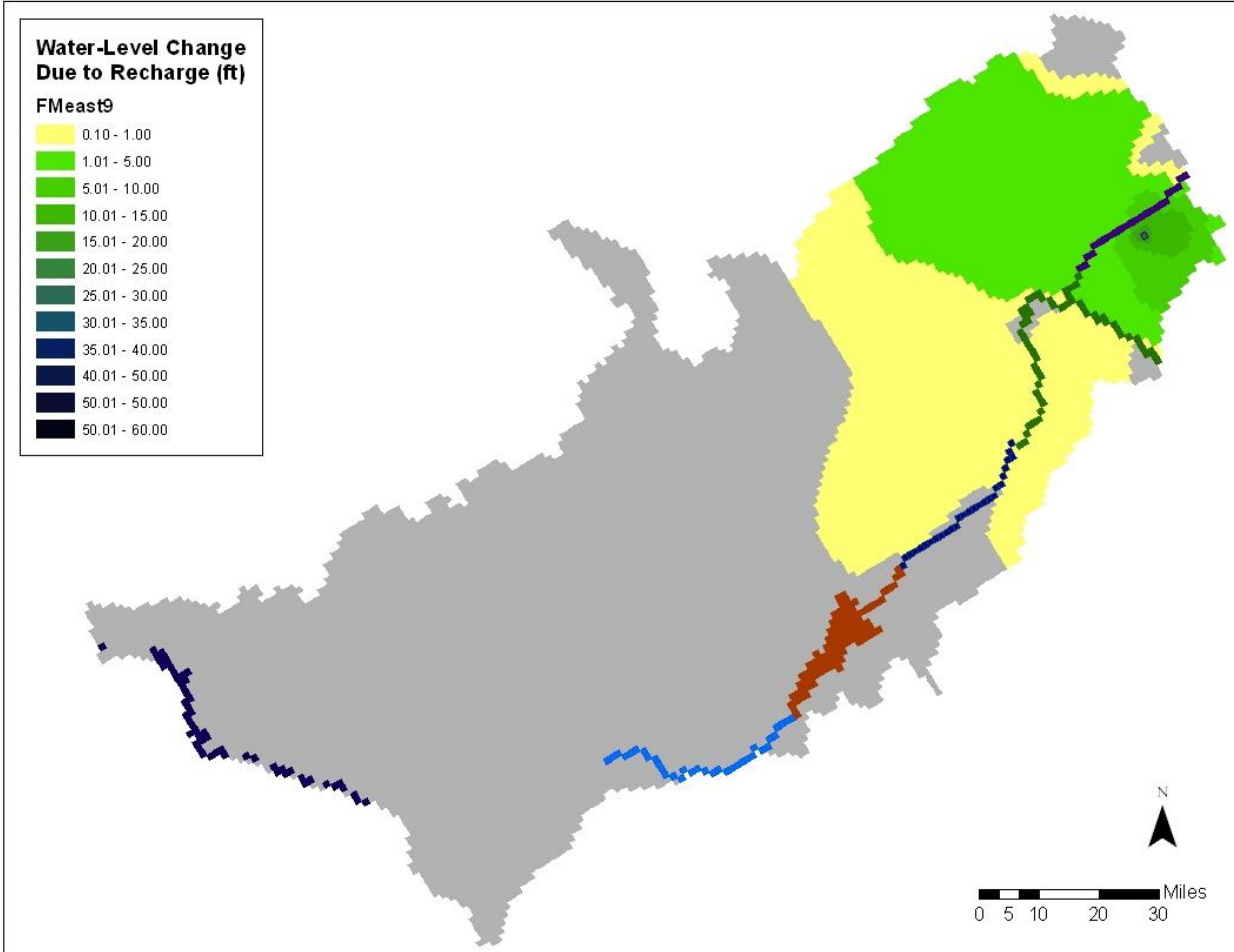
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
FMeast9
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1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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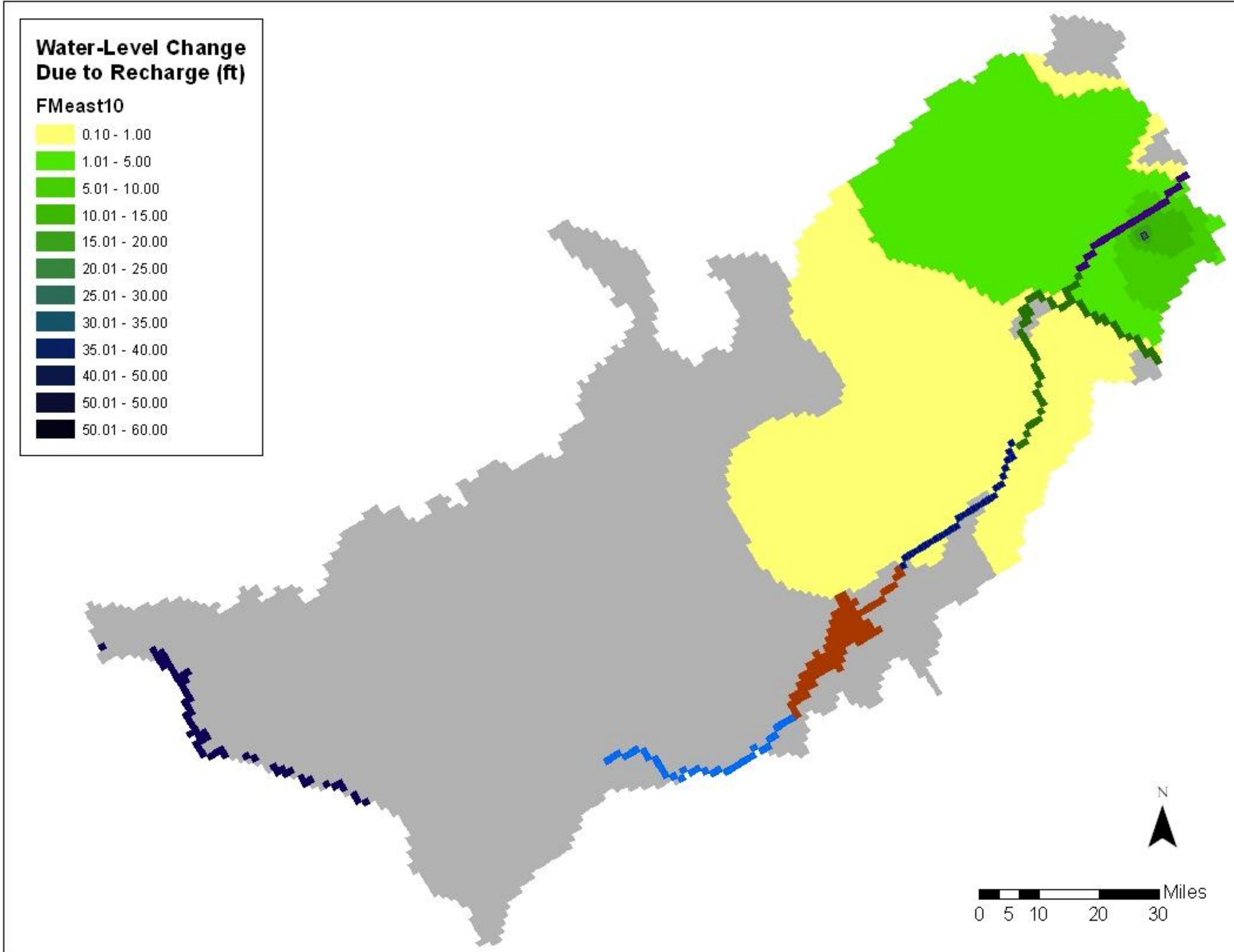
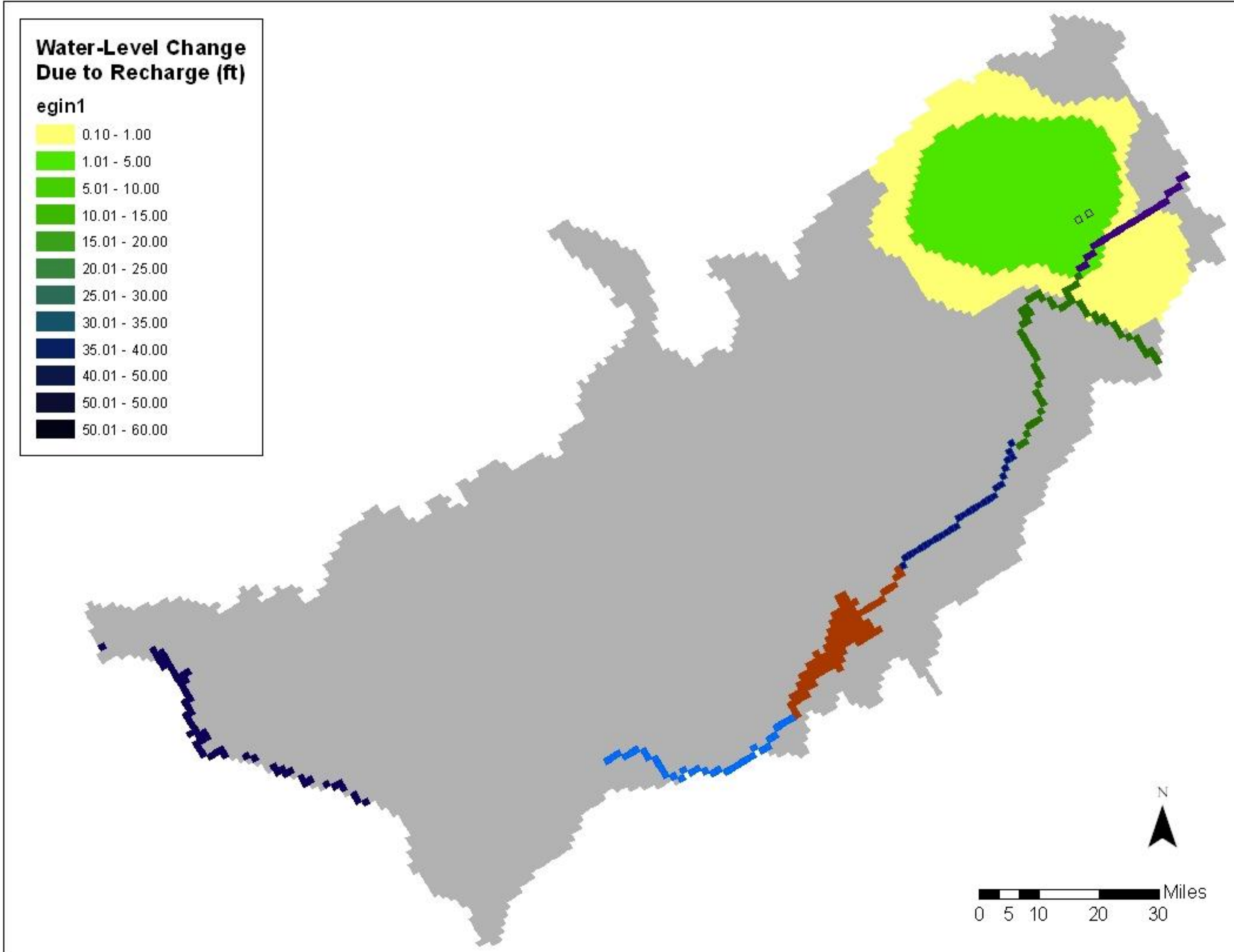
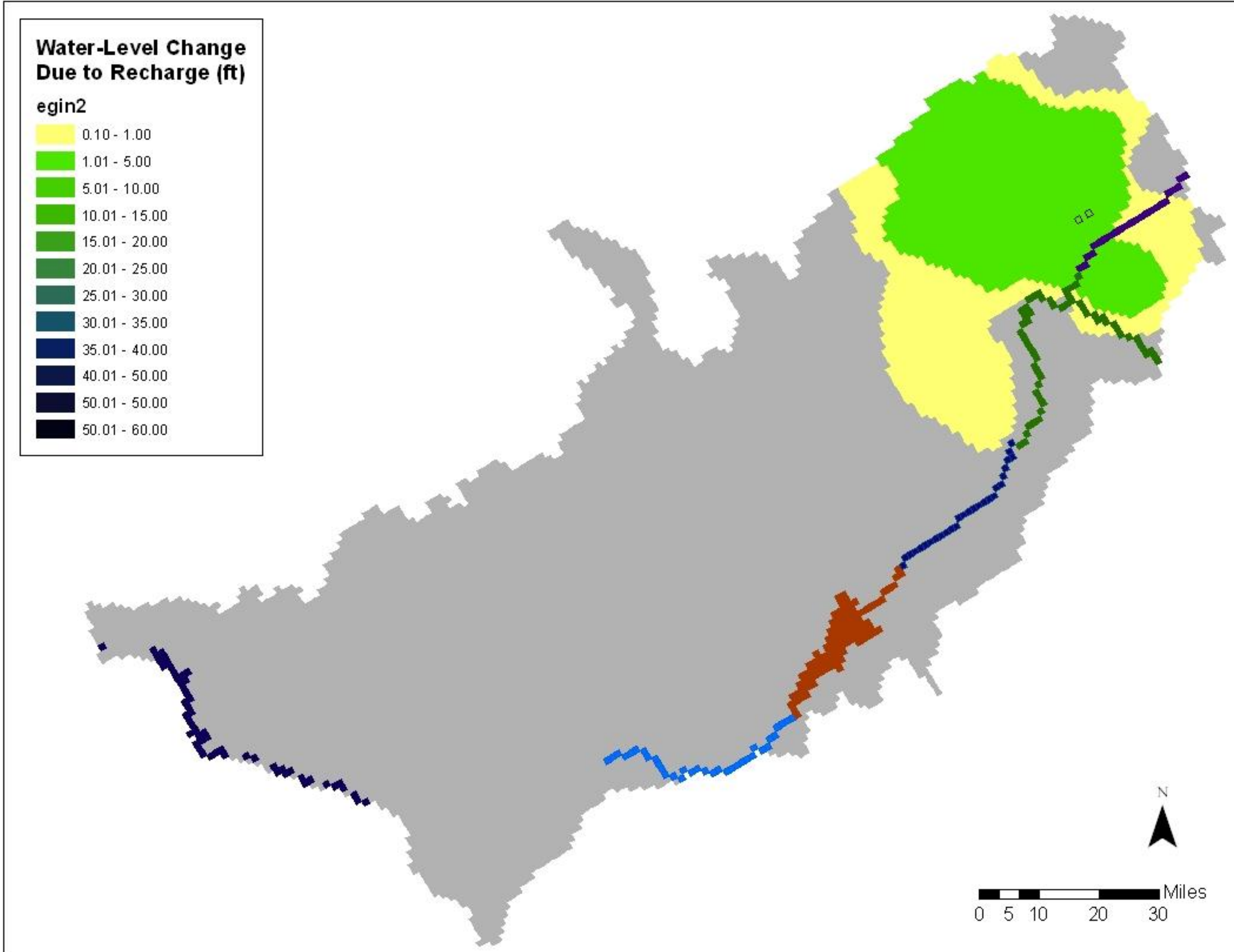
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change Due to Recharge (ft)
FMeast10
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change Due to Recharge (ft)
egin1
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
egin2
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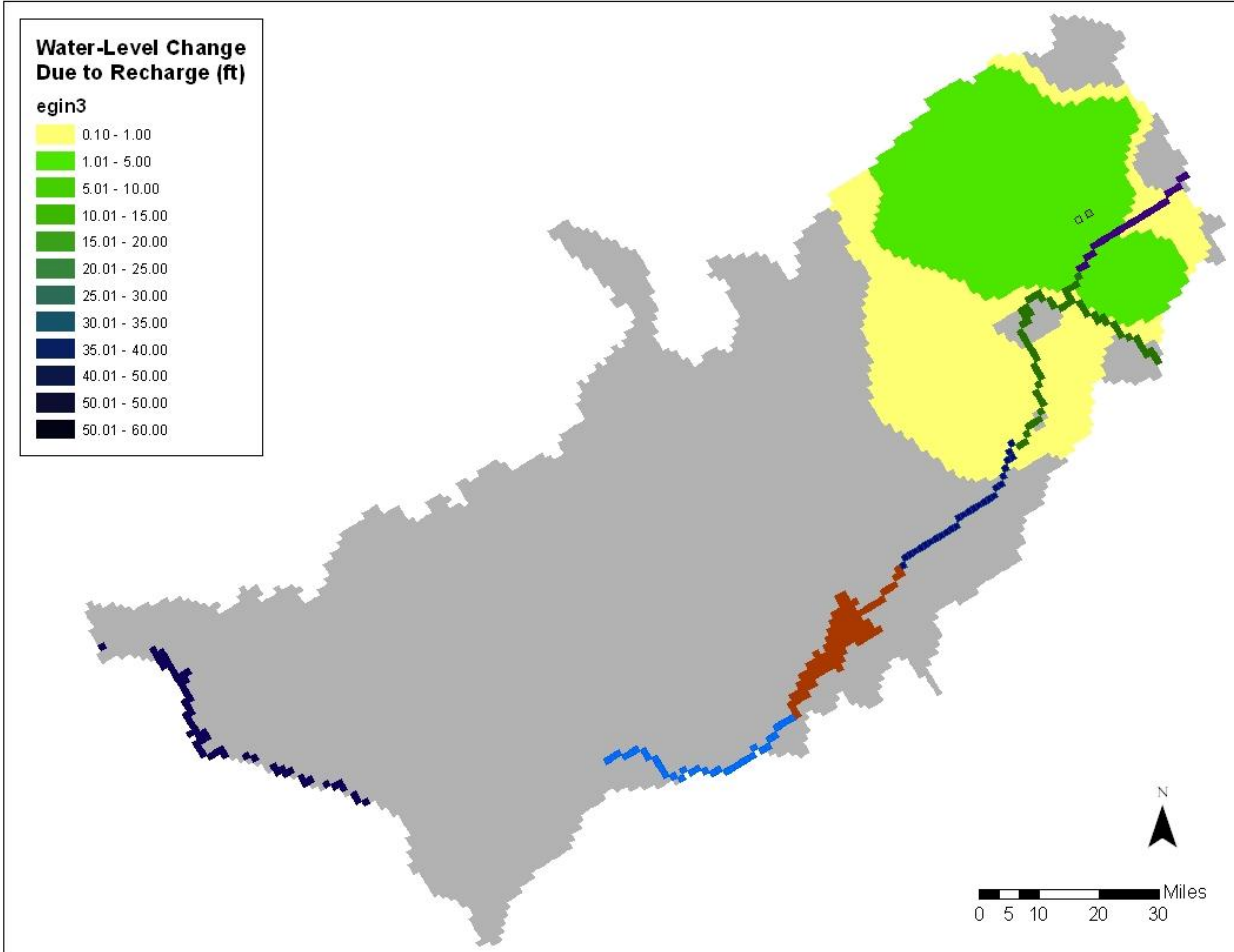
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
egin3
0.10 - 1.00
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5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
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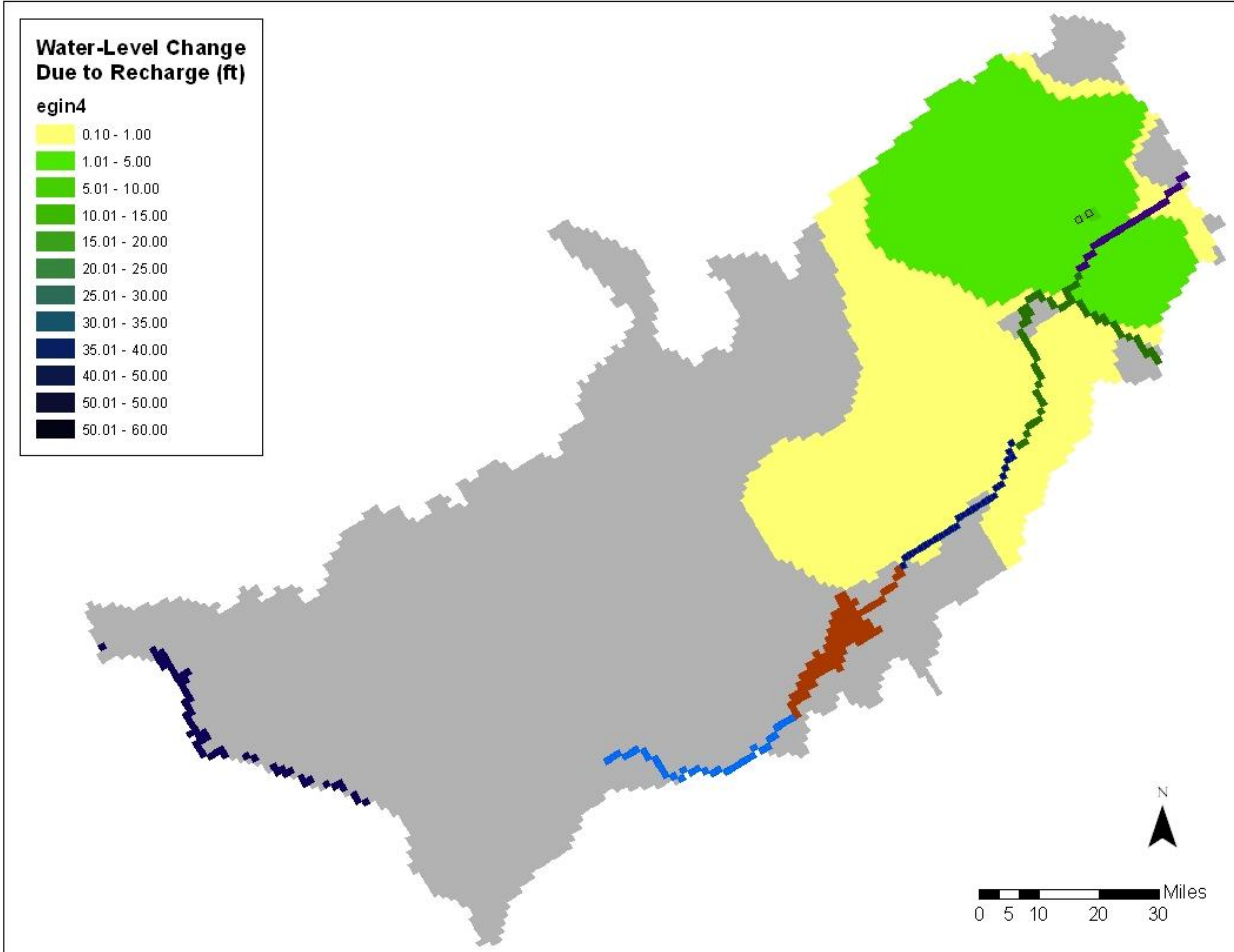
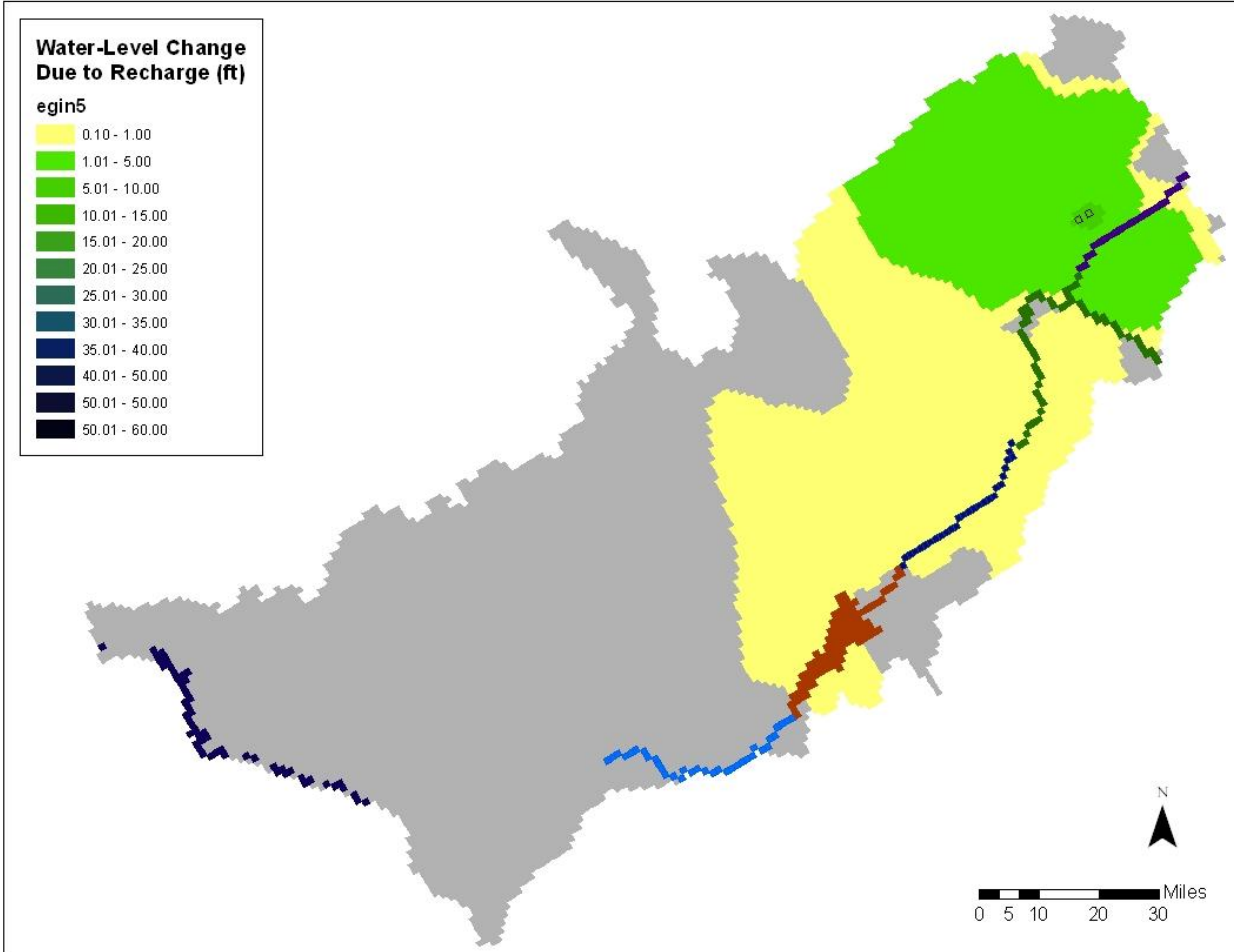
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
egin4
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
egin5
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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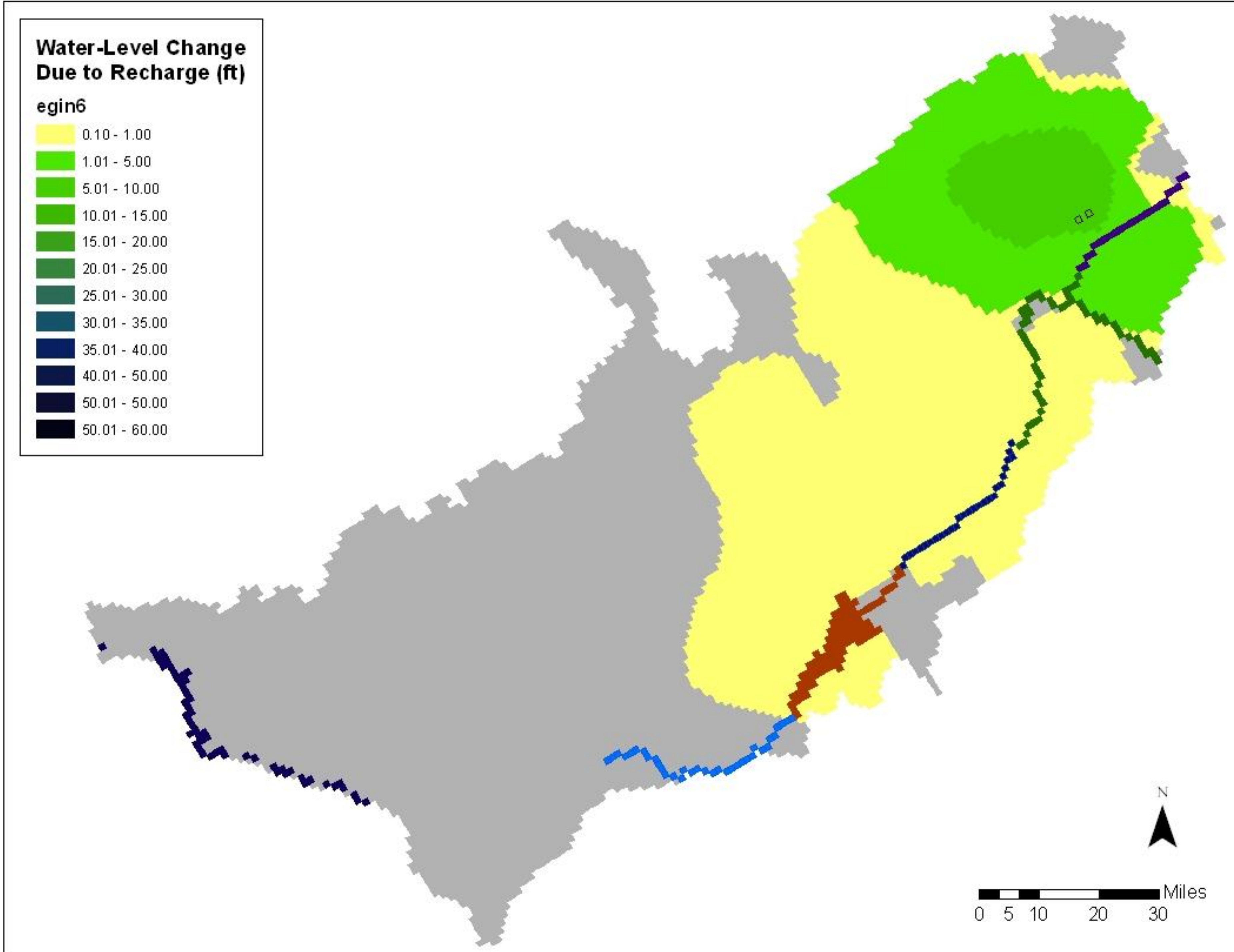
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
egin6
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1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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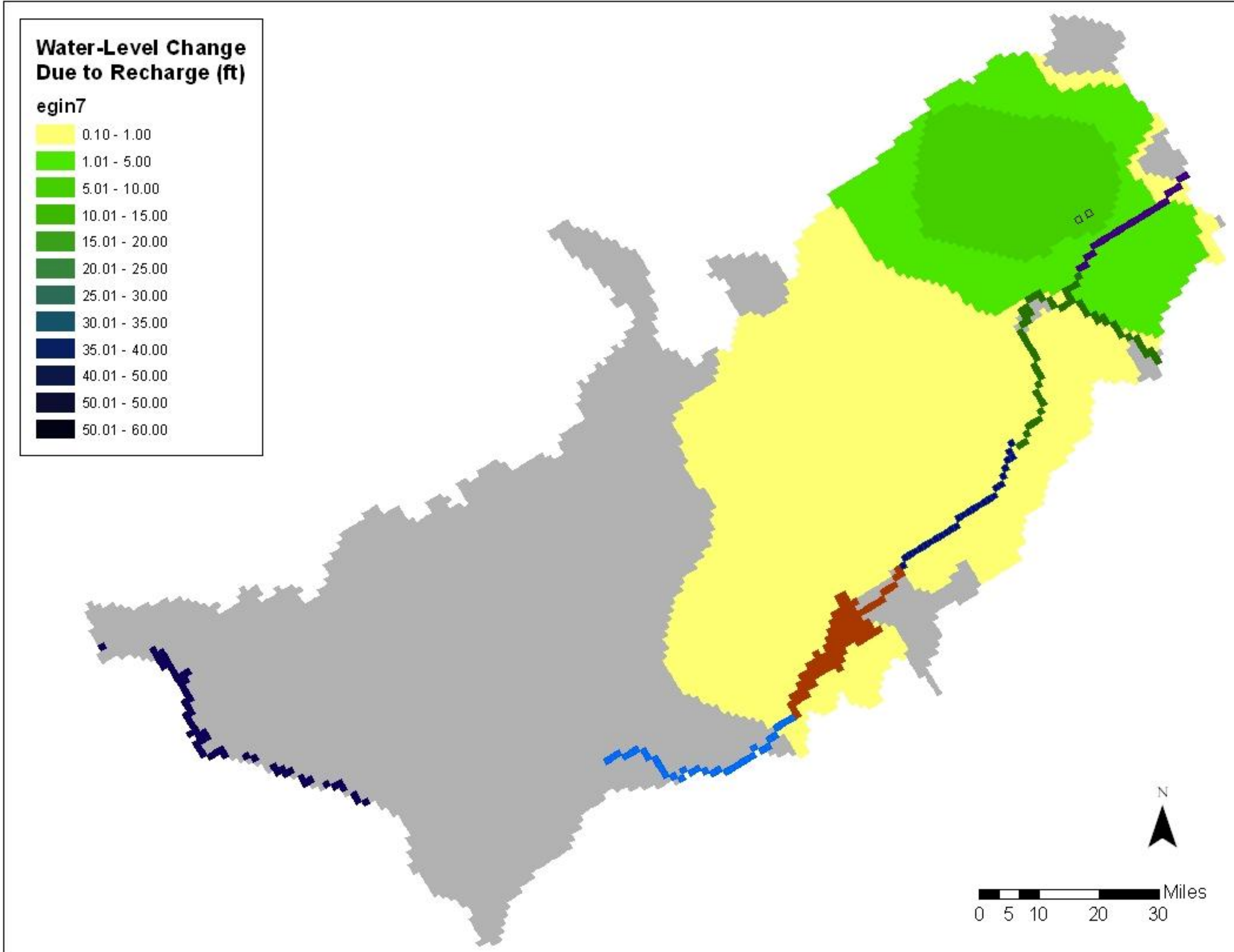
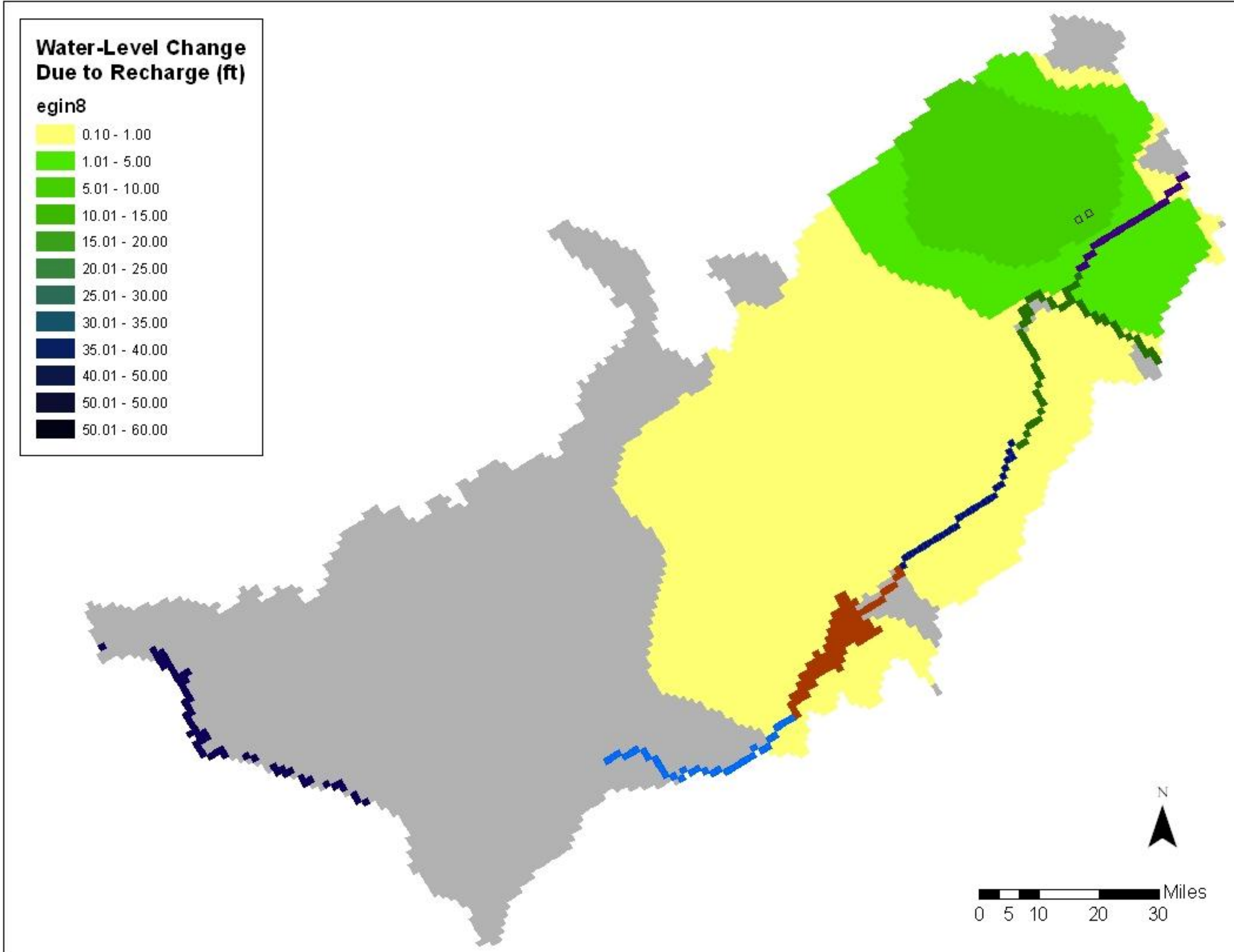
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
egin7
0.10 - 1.00
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30



Water-Level Change
Due to Recharge (ft)
egin8
0.10 - 1.00
1.01 - 5.00
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10.01 - 15.00
15.01 - 20.00
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25.01 - 30.00
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40.01 - 50.00
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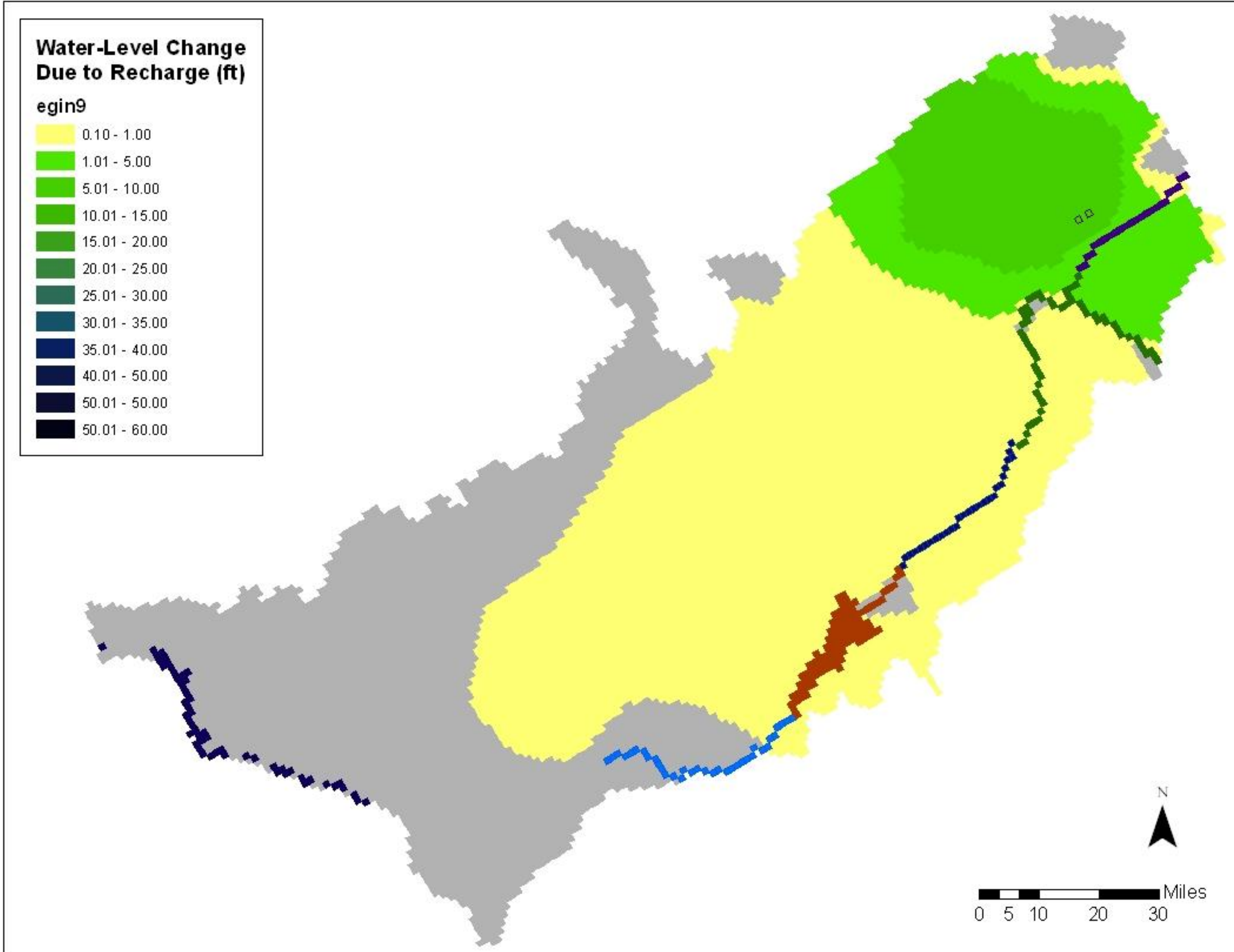
50.01 - 60.00
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
egin9
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5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
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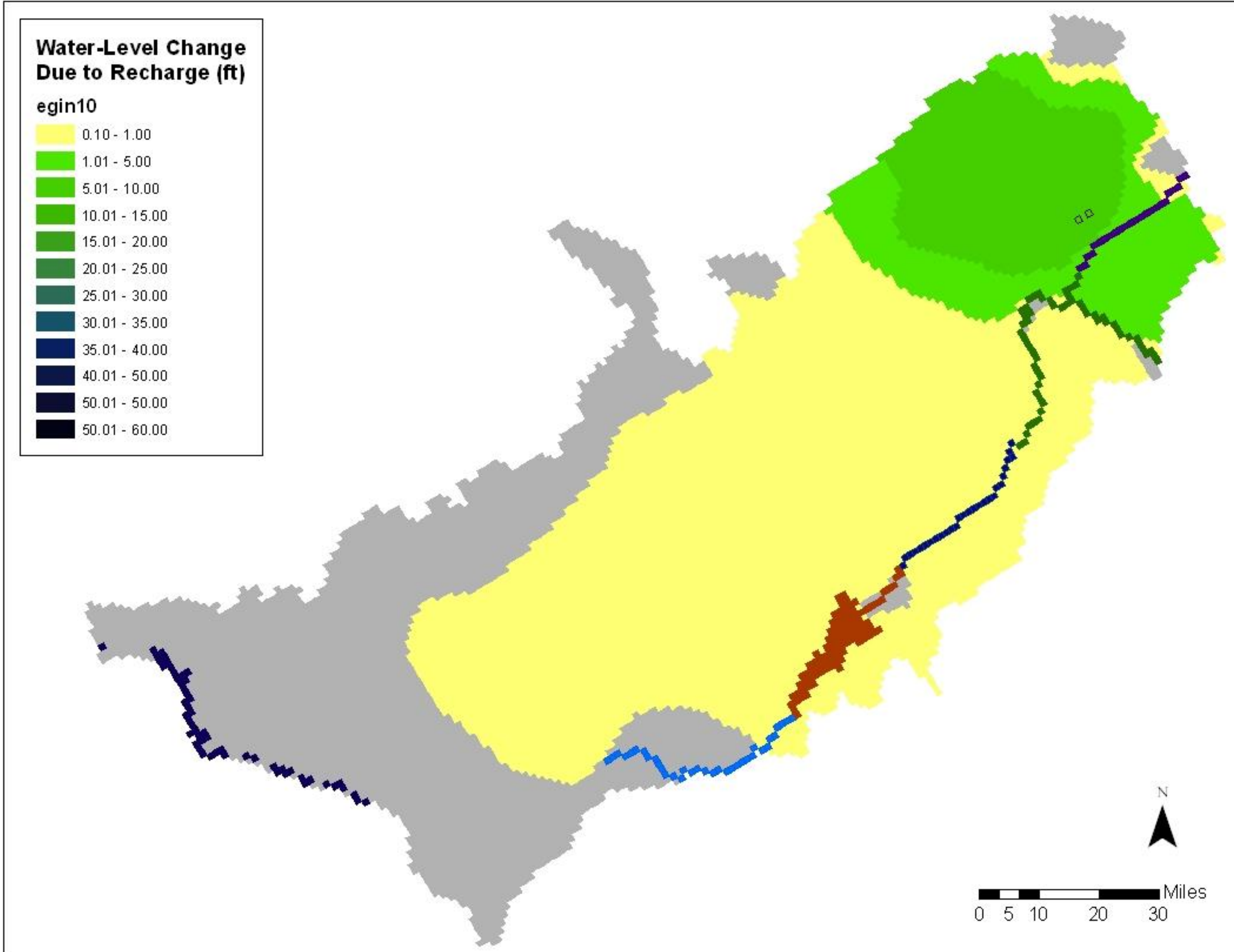
N
Miles
0 5 10 20 30


Water-Level Change
Due to Recharge (ft)
egin10
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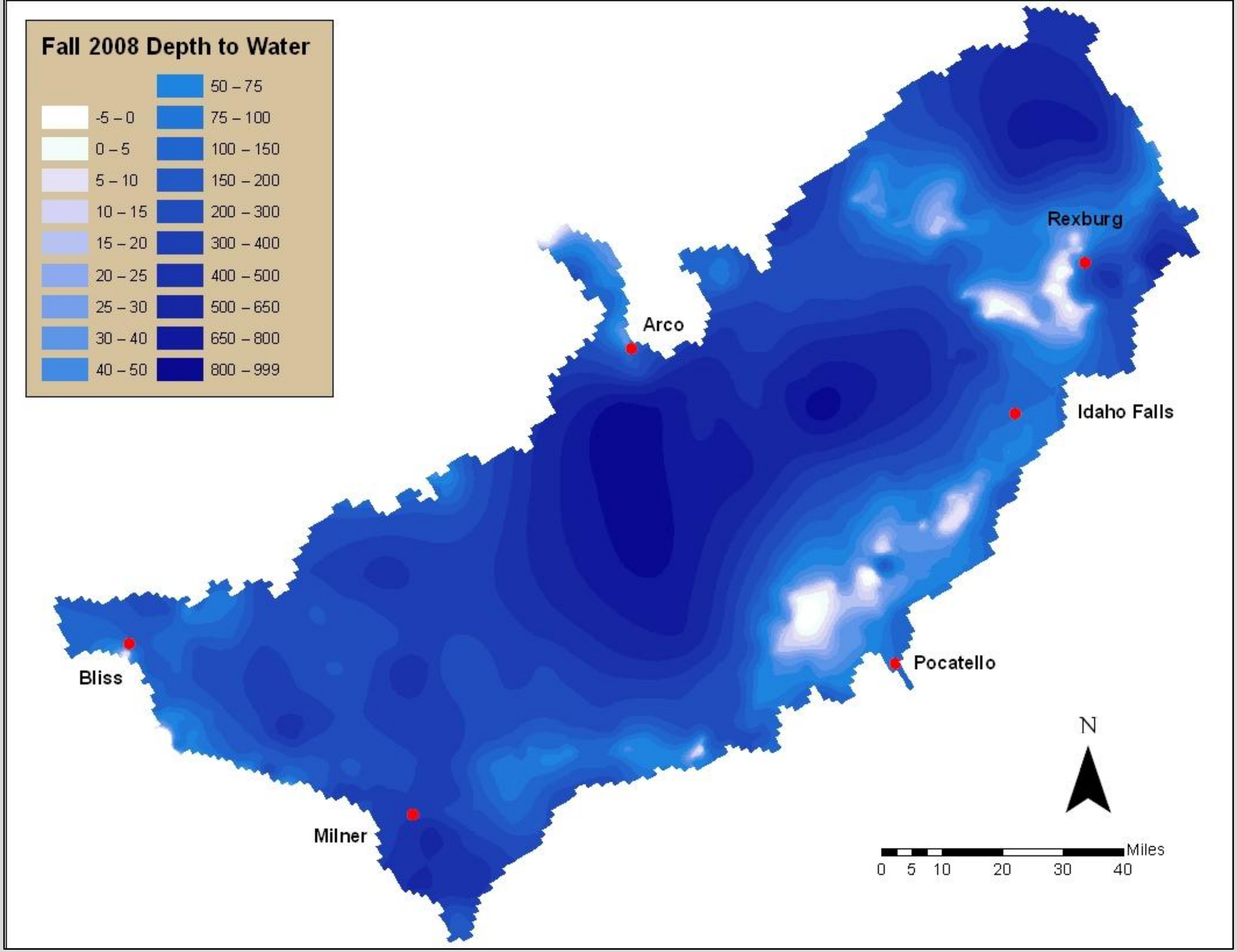
1.01 - 5.00
5.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 30.00
30.01 - 35.00
35.01 - 40.00
40.01 - 50.00
50.01 - 50.00
50.01 - 60.00
N
Miles
0 5 10 20 30

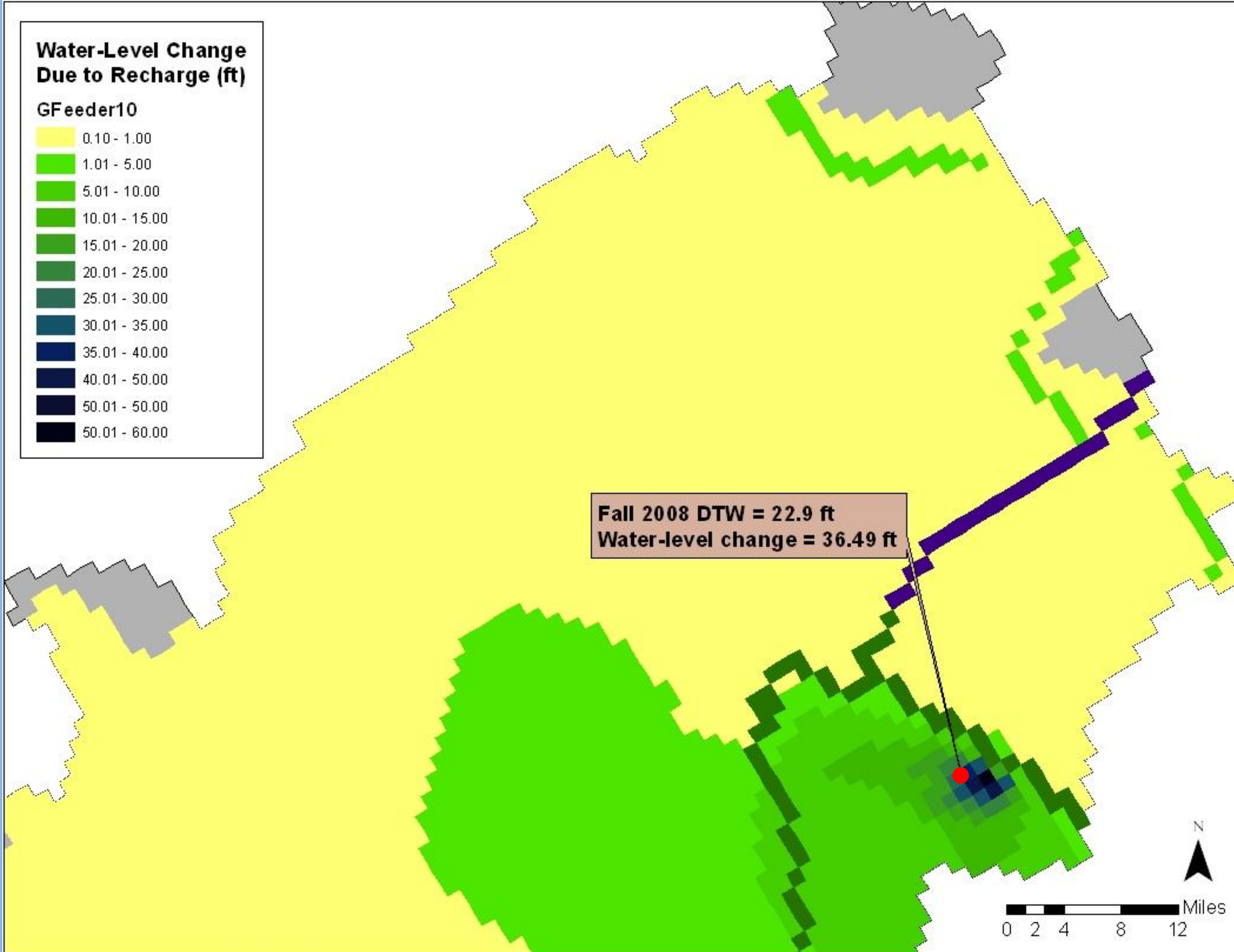
Value of Modeling Continuous 100,000 AF/yr Recharge at Individual Sites for Ranking Managed Recharge Sites

- Good way to *illustrate* the effects of Managed Recharge. The large, constant stress allows us to visualize how the aquifer responds to recharge.

- May be misleading as to the ability of a site to ***divert*** **and** ***accept*** recharge. Model can predict favorable Aquifer Storage benefits at sites that do not have the physical capacity to place large amounts of recharge into aquifer storage.



Observation: Several locations exhibit shallow groundwater that may make Managed Recharge less effective than modeled results.



Example of a location where the model predicts water-level changes above land surface.

Is the ESPAM2.1 Predicting Geysers?

No. The model has not been given any information about land surface.
We must remember we are the brain, the model is the tool.

In the areas where the model predicts water-level changes that are at or above land surface, it is important to remember the model is not wrong.

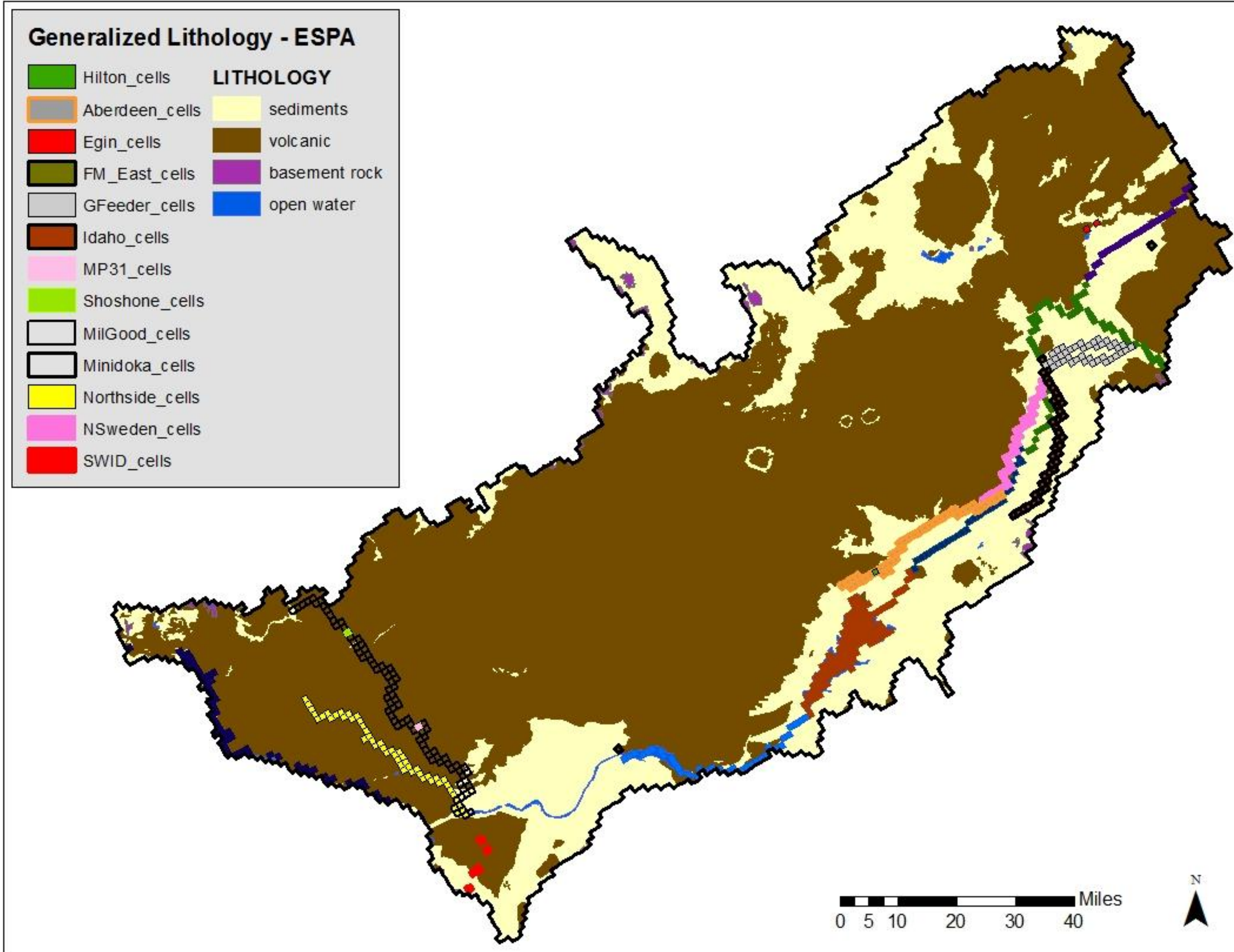
The model is telling us something. THINK.

How to Employ a Regional Model

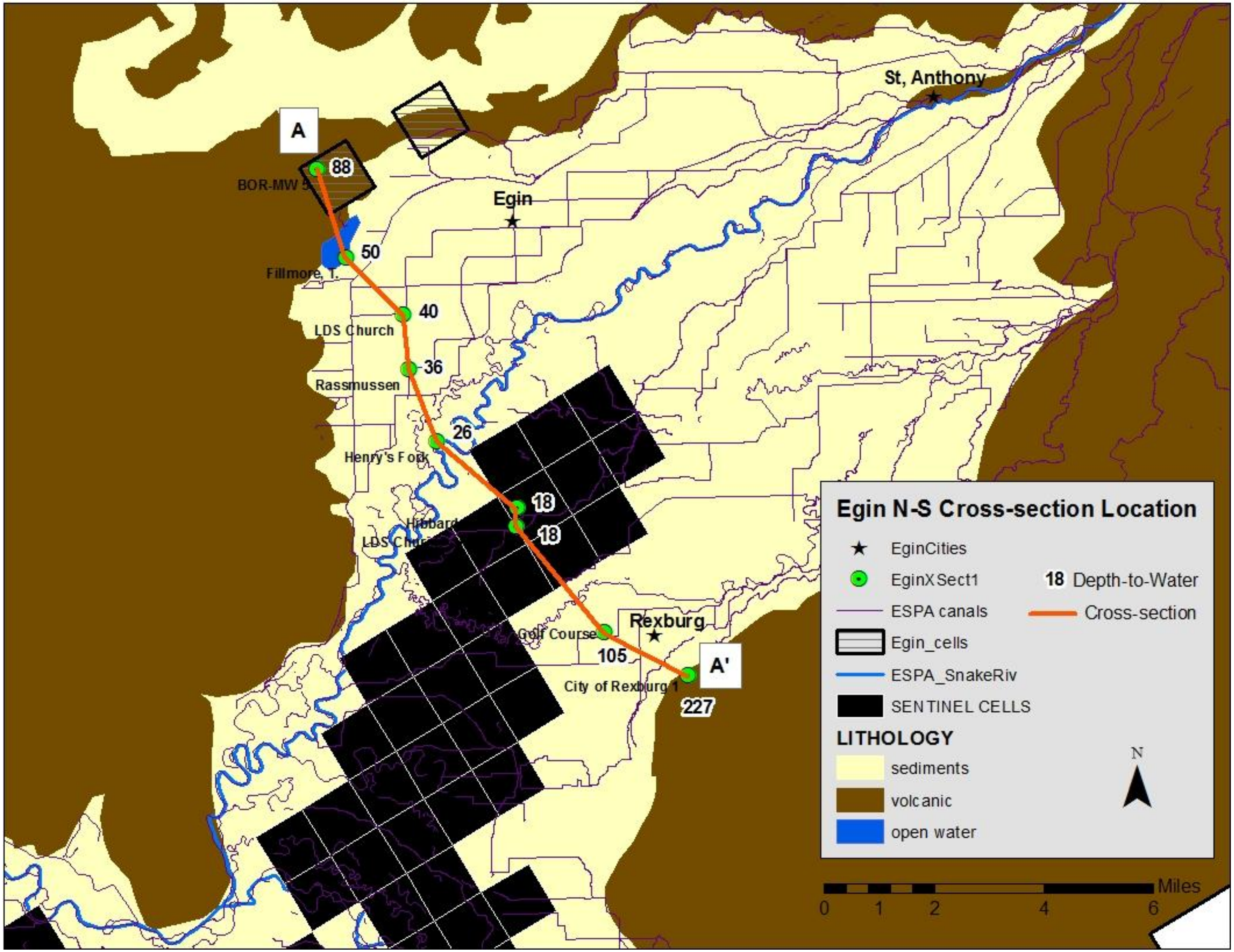
- Typically some degree of locality.
- Is the local hydrogeology captured by the model?
- Is the modeling scenario comparable to real-life activities?
- Identify and acknowledge local conditions when running the model.

Local Hydrogeology

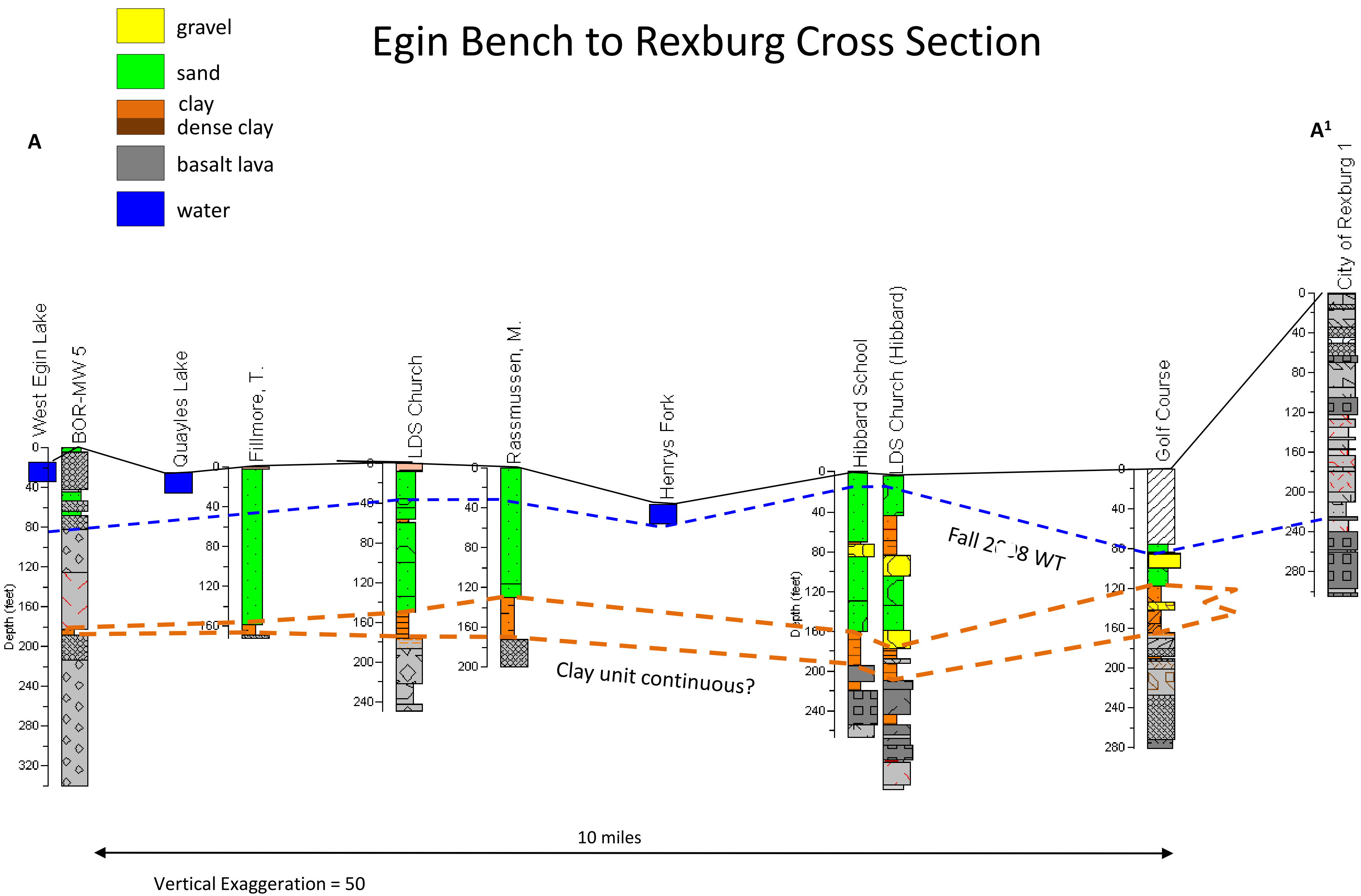
- Focus on areas of concern.


Generalized Lithology - ESPA
Hilton_cells
Aberdeen_cells
Egin_cells
FM_East_cells
GFeeder_cells
Idaho_cells
MP31_cells
Shoshone_cells
MilGood_cells
Minidoka_cells
Northside_cells
NSweden_cells
SWID_cells
LITHOLOGY
sediments
volcanic
basement rock
open water
0 5 10 20 30 40
Miles
N

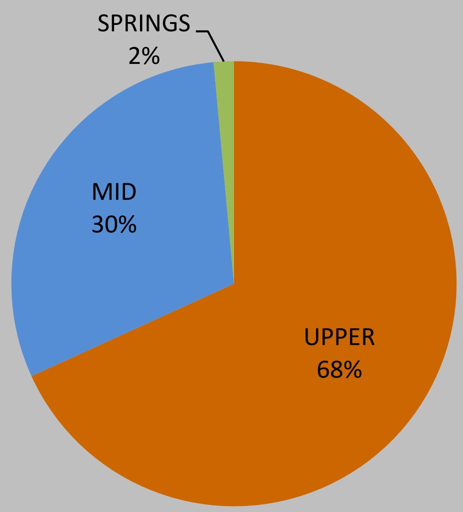
Egin Recharge Area: N – S Cross Section



Egin Bench to Rexburg Cross Section



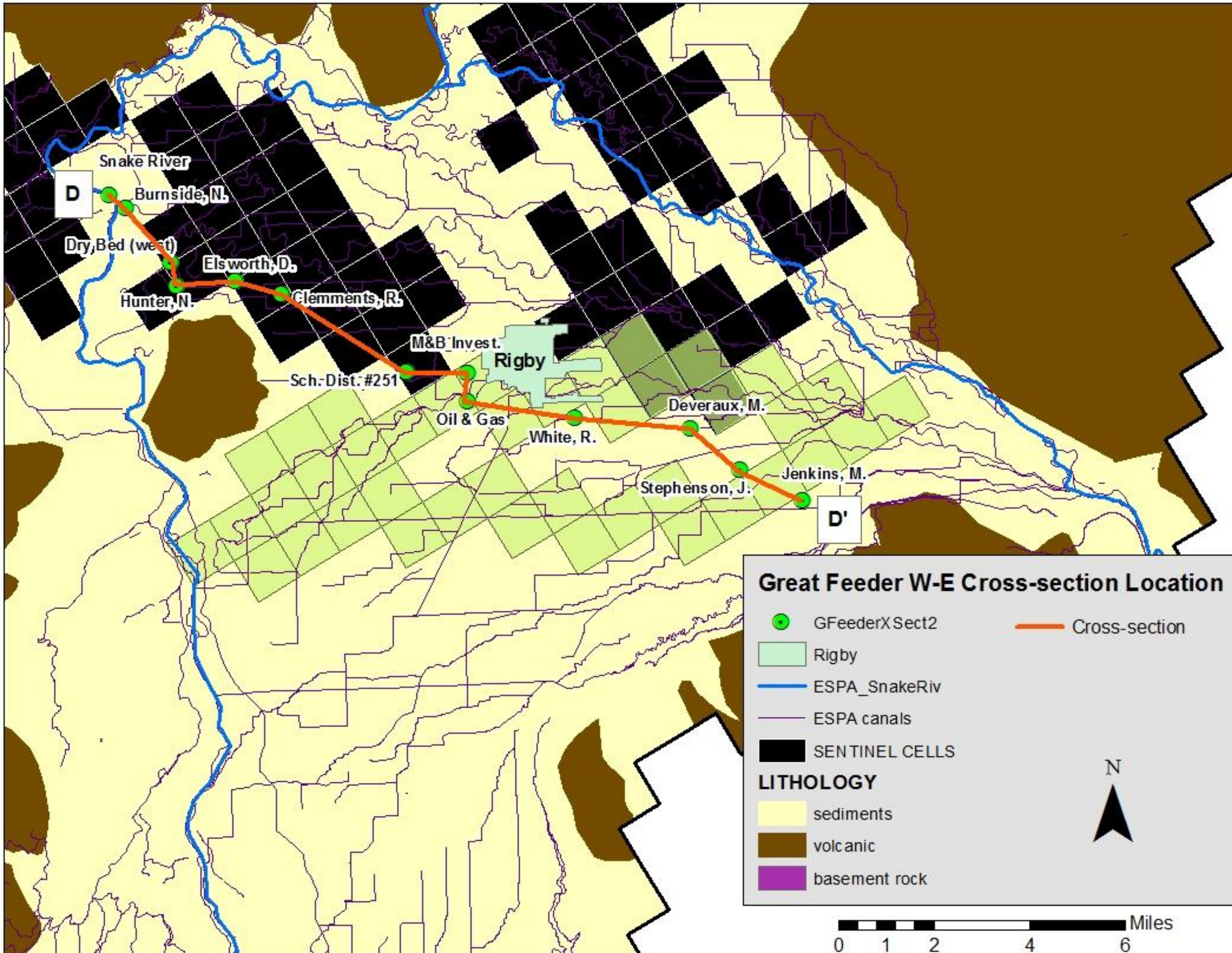
Summary of Egin Hydrogeology



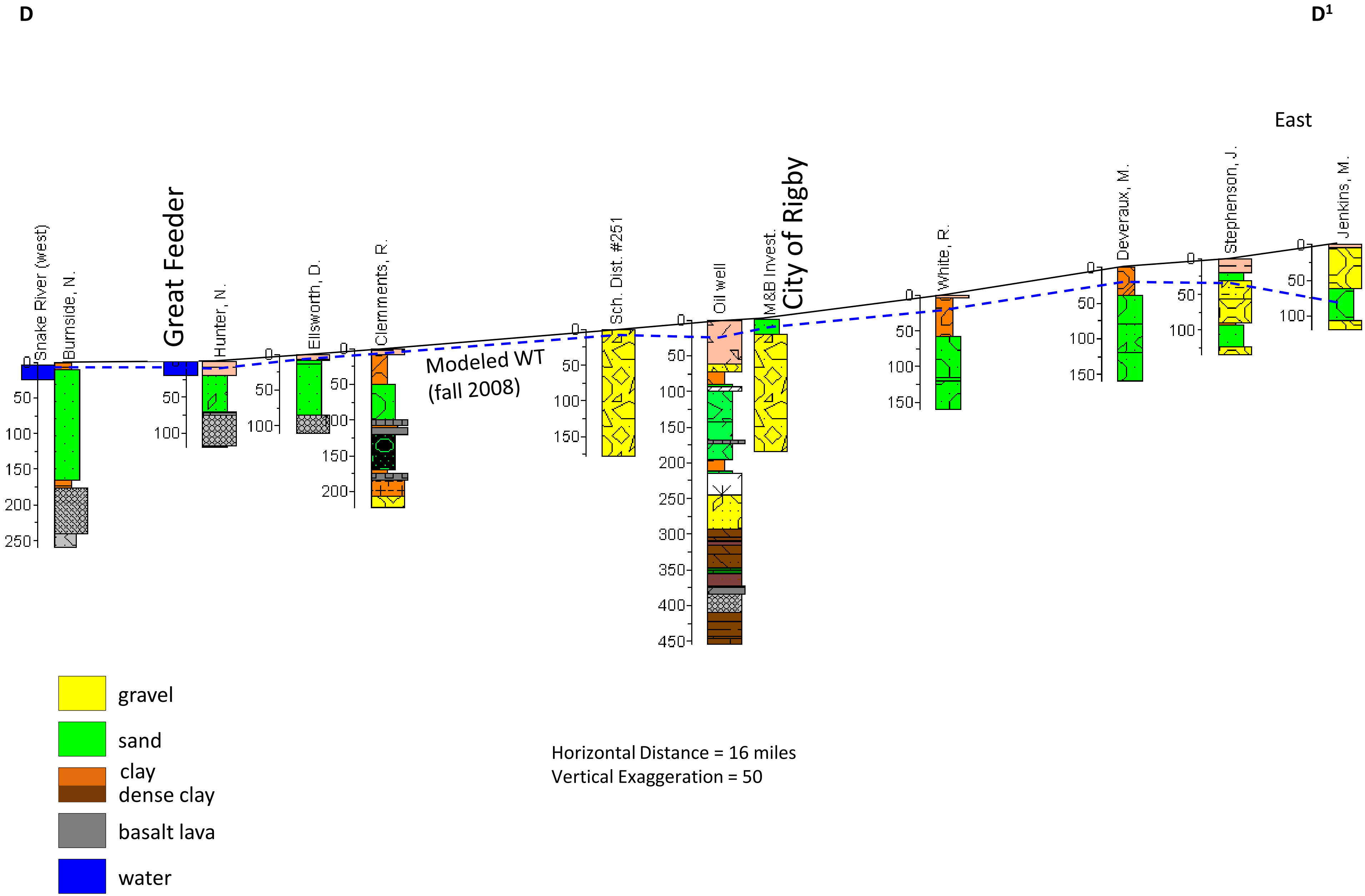
Ultimate Fate of Recharged Water

- Recharge via off-canal sites.
- Subsurface is primarily sediments.
- Site lies on the edge of the regional aquifer and a shallow system.
- Located near an area of shallow groundwater.
- Majority of recharge water discharges: Upper Reaches (Henry's Fork 35%).
- Recharge site location indicates that the hydrogeology is reasonably represented by the model, and recharge at the lakes will generally impact the regional aquifer as shown.

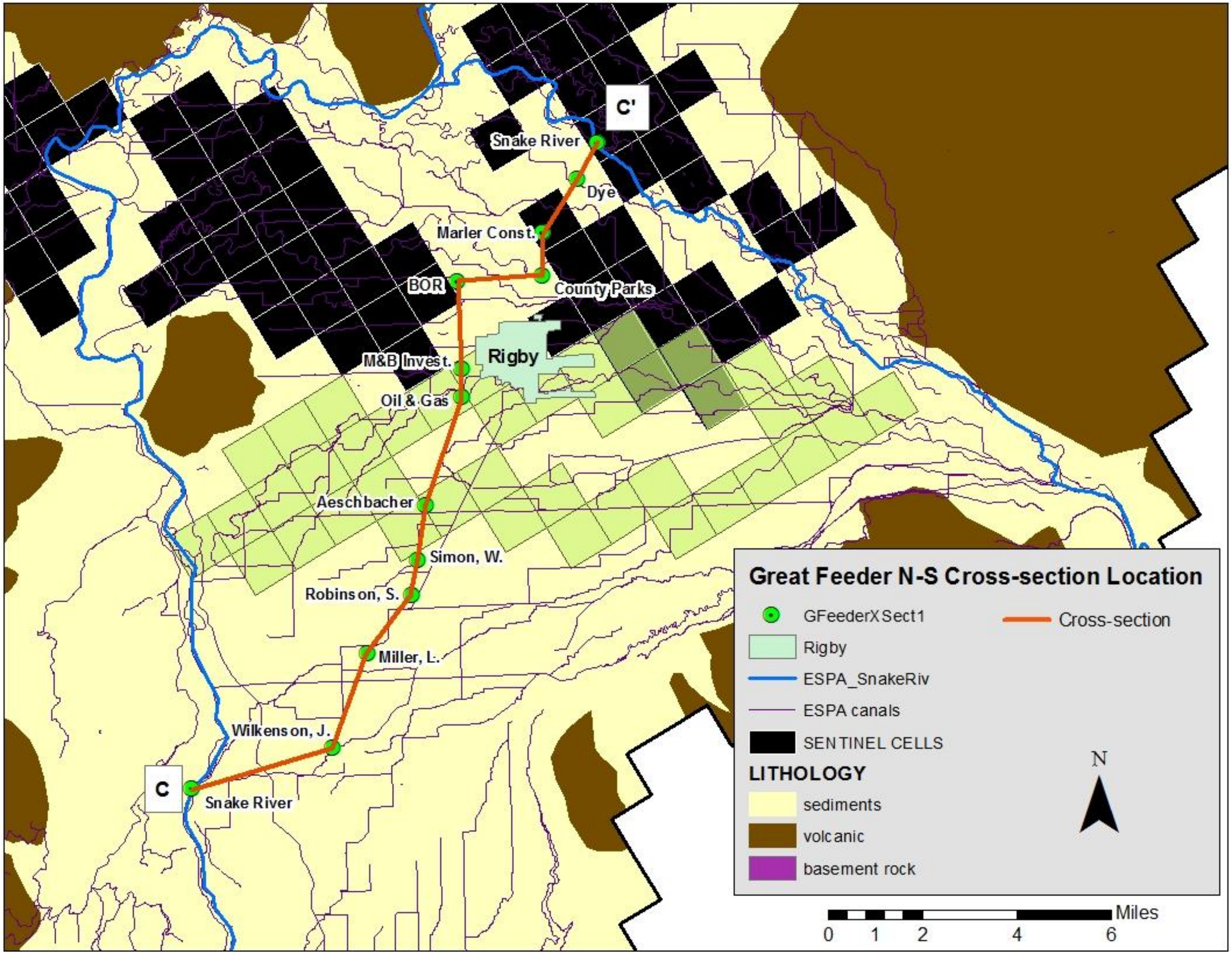
Great Feeder Recharge Area: W – E Cross-Section



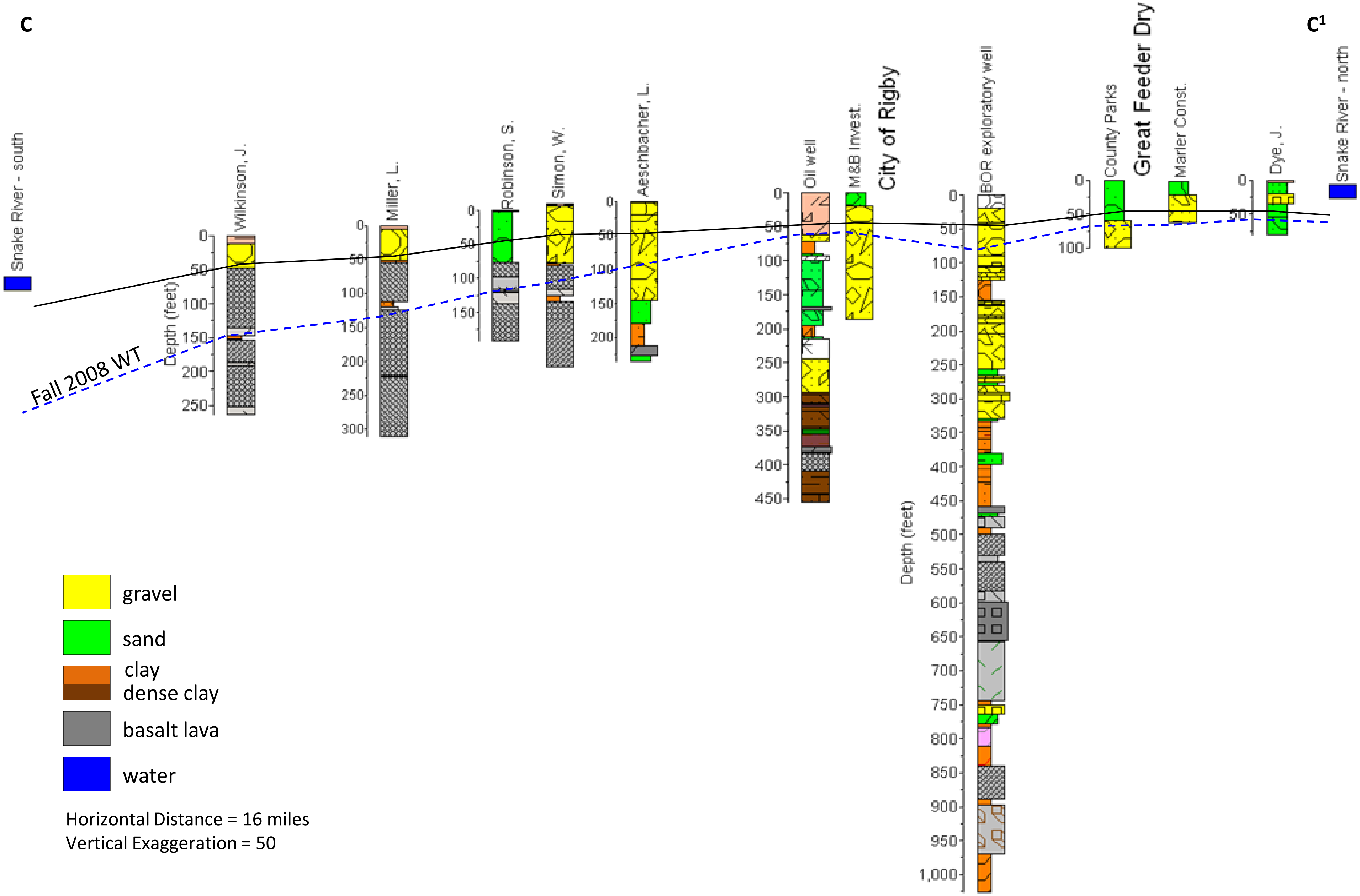
Great Feeder Area W – E Cross Section



Great Feeder Recharge Area: S – N Cross-Section

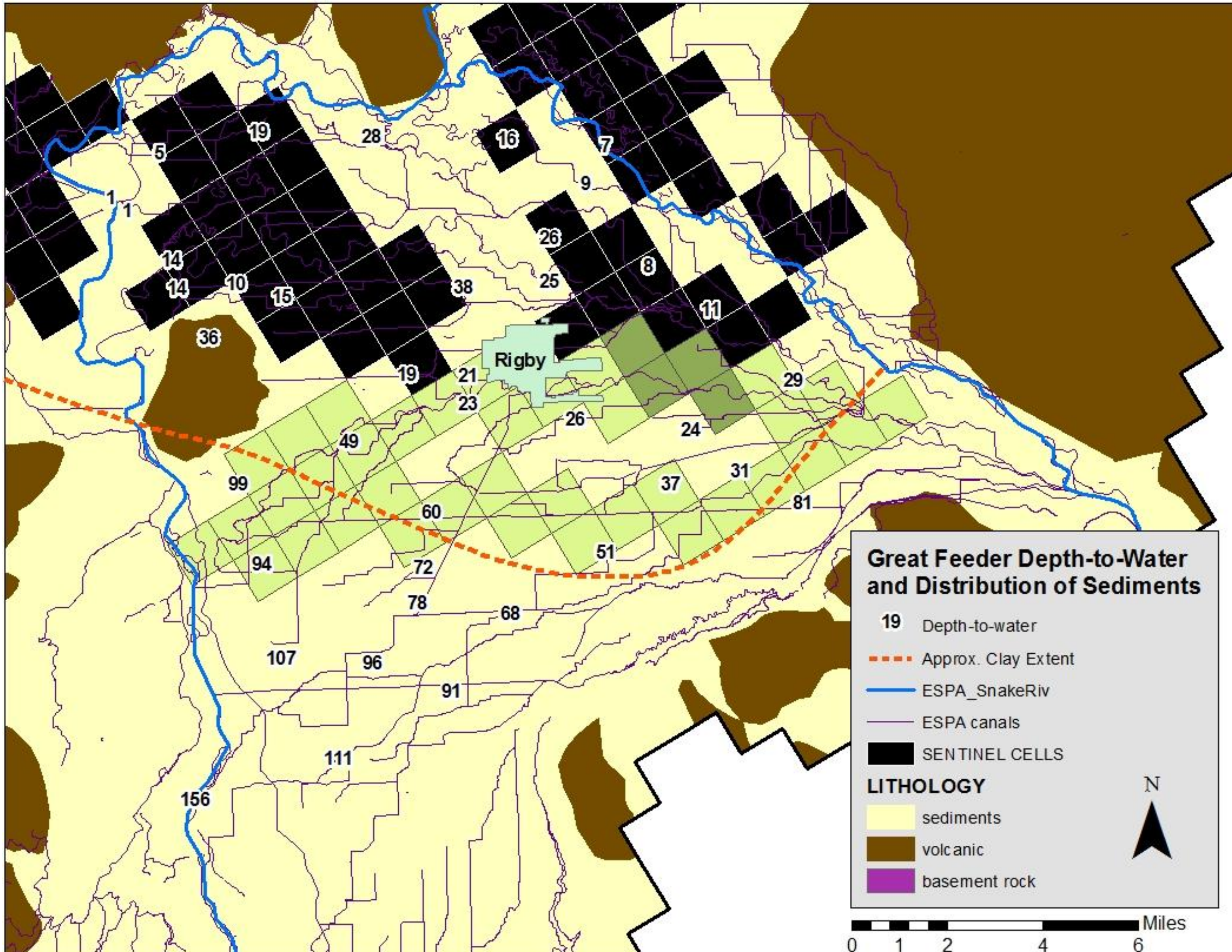


Great Feeder Area S – N Cross Section

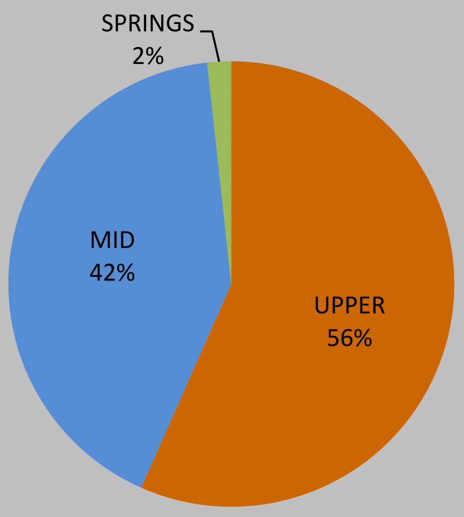


Horizontal Distance = 16 miles
Vertical Exaggeration = 50

Great Feeder Depth-to-Water and Sediment Extent



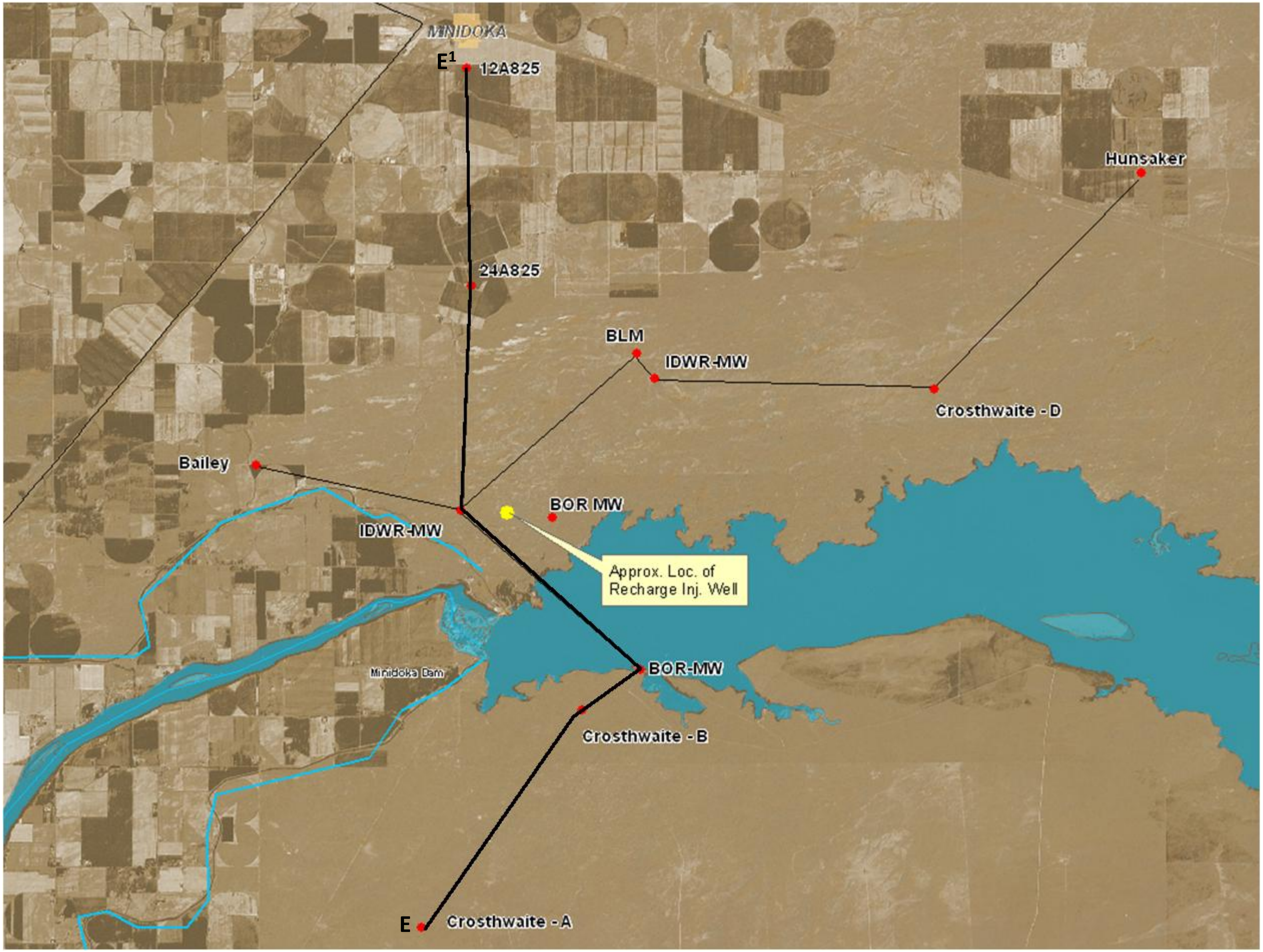
Summary of Great Feeder Hydrogeology



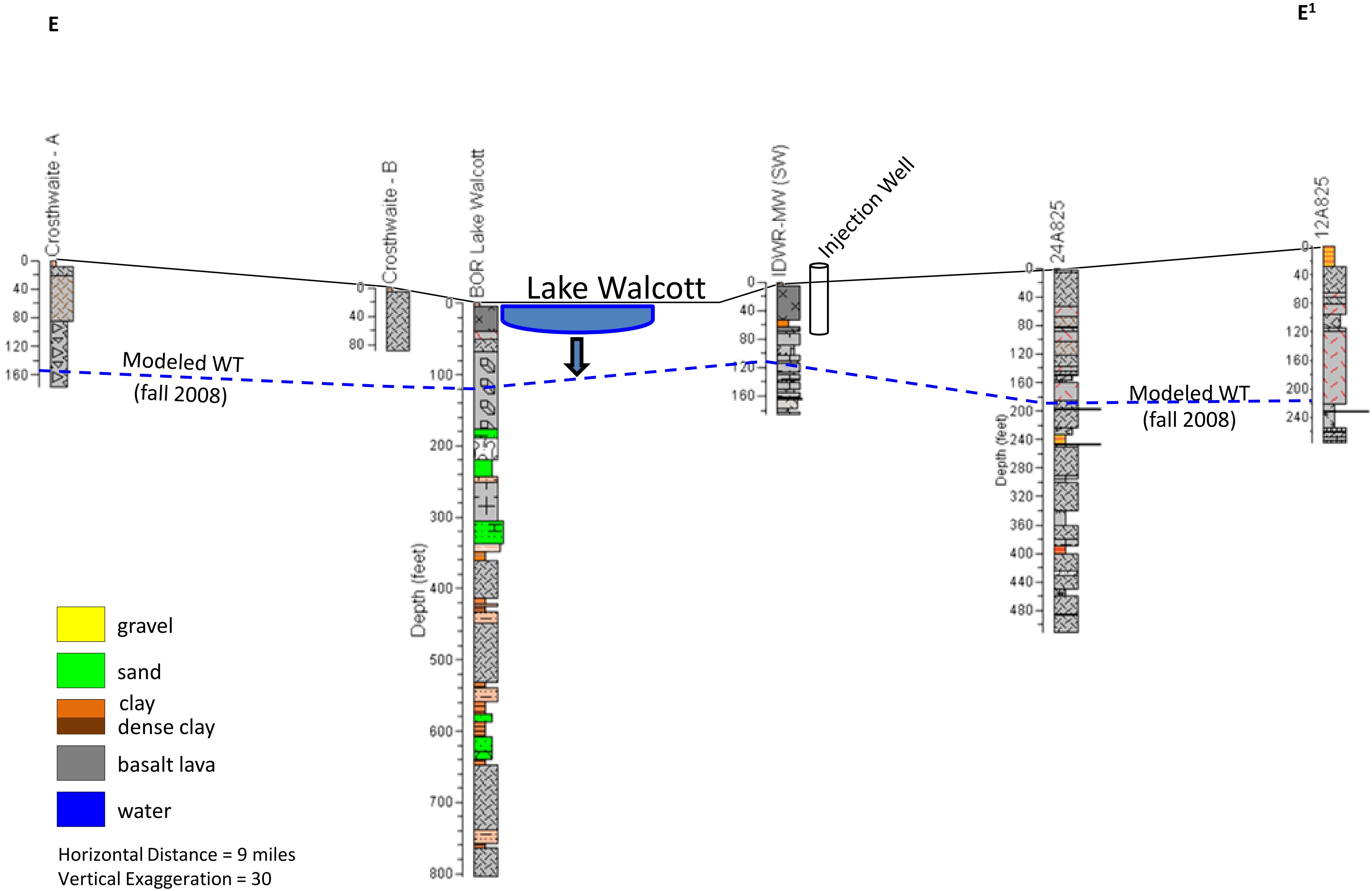
Ultimate Fate of Recharged Water

- Recharge via canal seepage.
- Subsurface is primarily sediments.
- Located in an area of shallow groundwater.
- Northern portion in shallow system, grades to regional aquifer to the south.
- Majority of recharge water discharges: Upper Reaches (Heise-to-Shelly 53%).
- Hydrogeology indicates that the northern portion of the area may consist of multiple aquifers. However, impacts due to recharge seem reasonable in that much of the water is discharging to the Snake River relatively quickly.
- Recharge site location is in the southern portion; therefore, impacts due to recharge may generally impact the regional aquifer as shown.

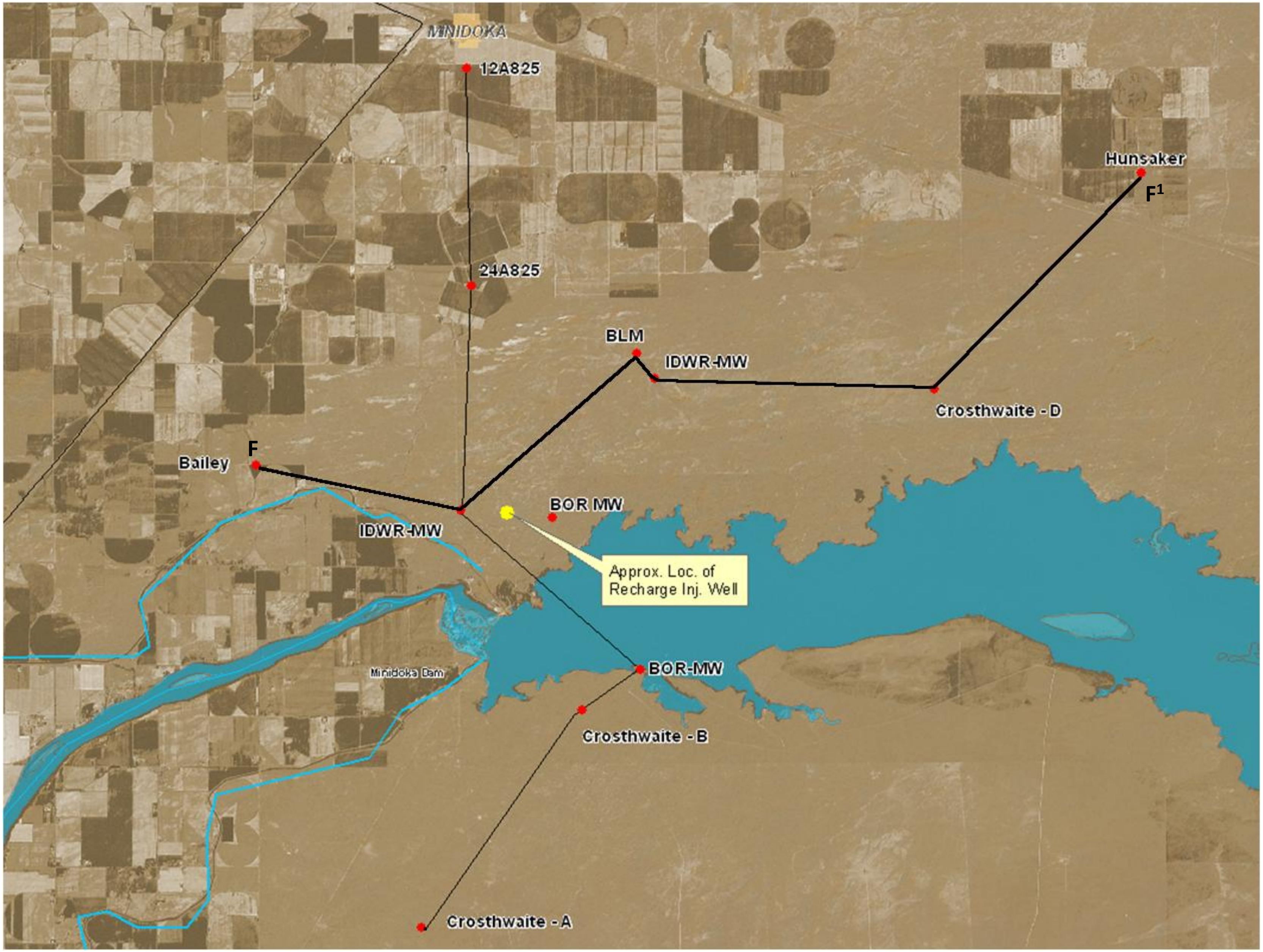
Minidoka Recharge Area S – N Cross-Section



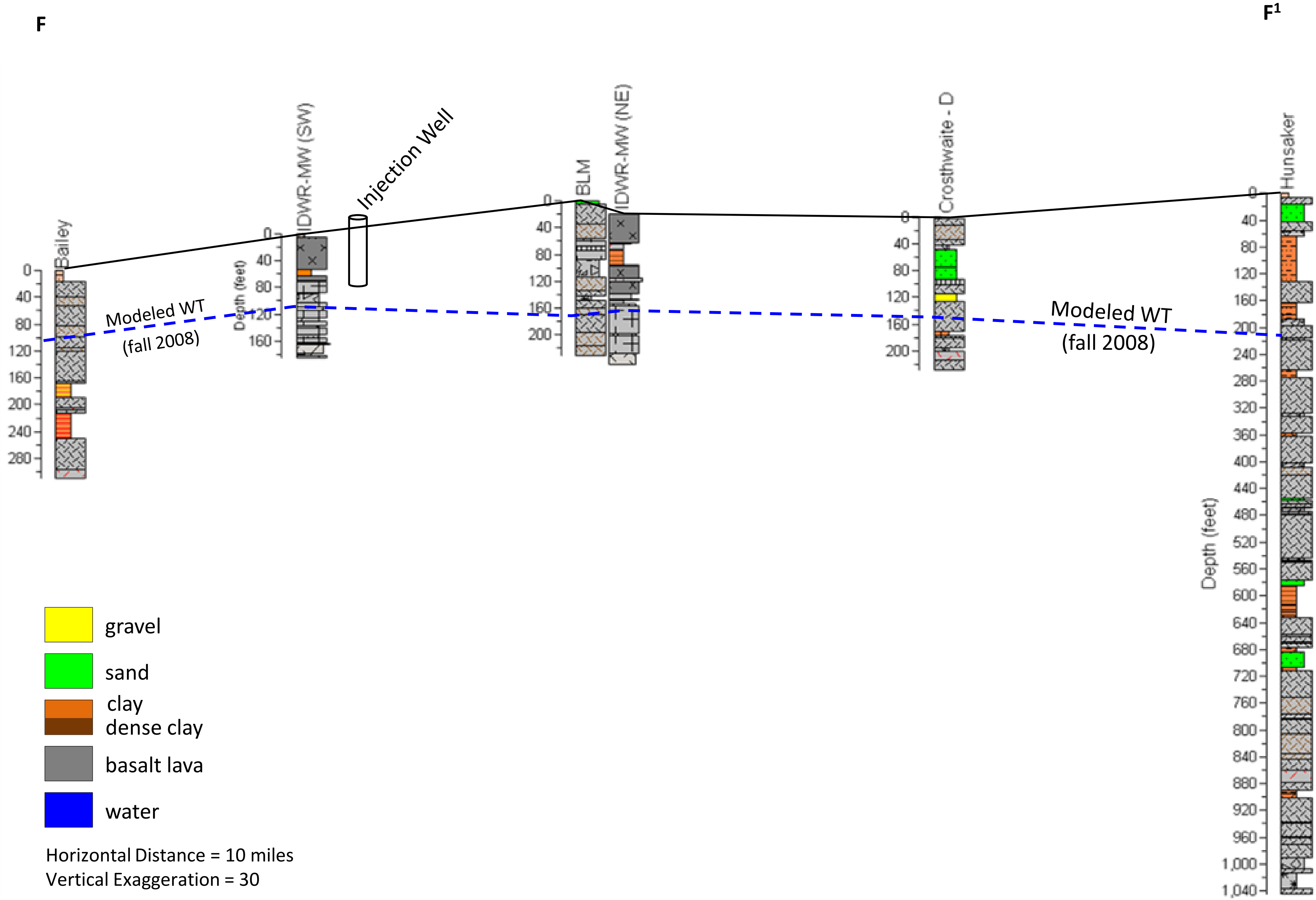
Minidoka Recharge Area S – N Cross-Section



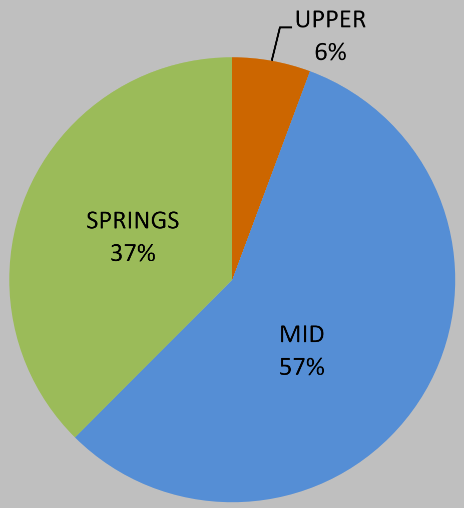
Minidoka Recharge Area W – E Cross-Section



Minidoka Recharge Area W – E Cross-Section



Summary of Minidoka Hydrogeology

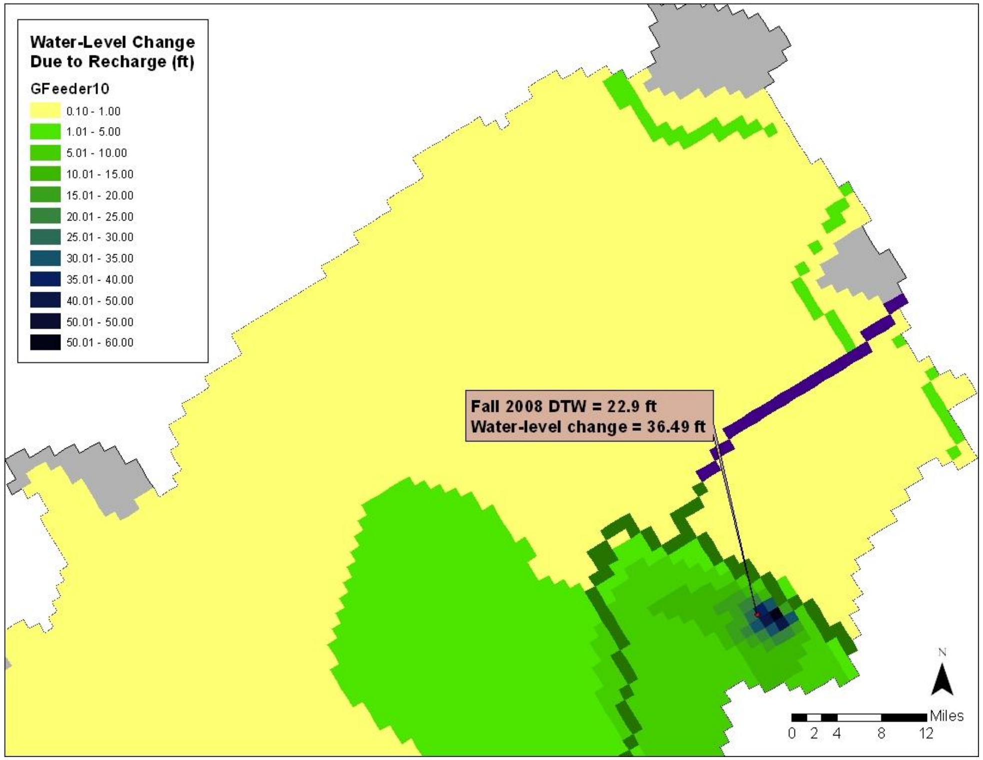


Ultimate Fate of Recharged Water

- Recharge via injection well at off-canal site.
- Subsurface is primarily basalt.
- Located in an area of deep groundwater.
- Must inject below confining layer.
- Majority of recharge water discharges: Middle Reaches (Nr Blackfoot-to-Minidoka 44%).
- Hydrogeology indicates the presence of a clay layer that may create a perched upper aquifer. However, since the site is projected to use injection wells, recharge to the regional aquifer can be modeled.

Local Conditions

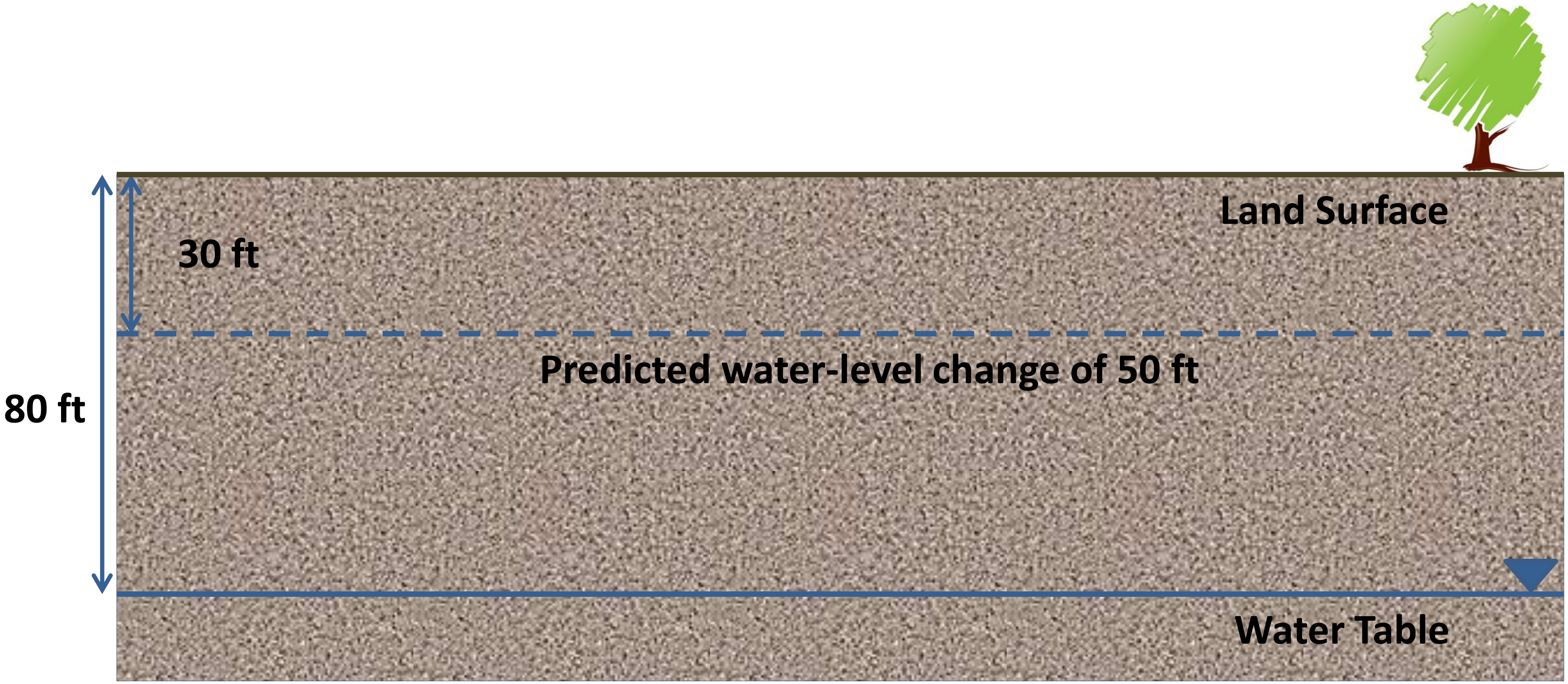
- Focus on recharge capacity and depth-to-water.



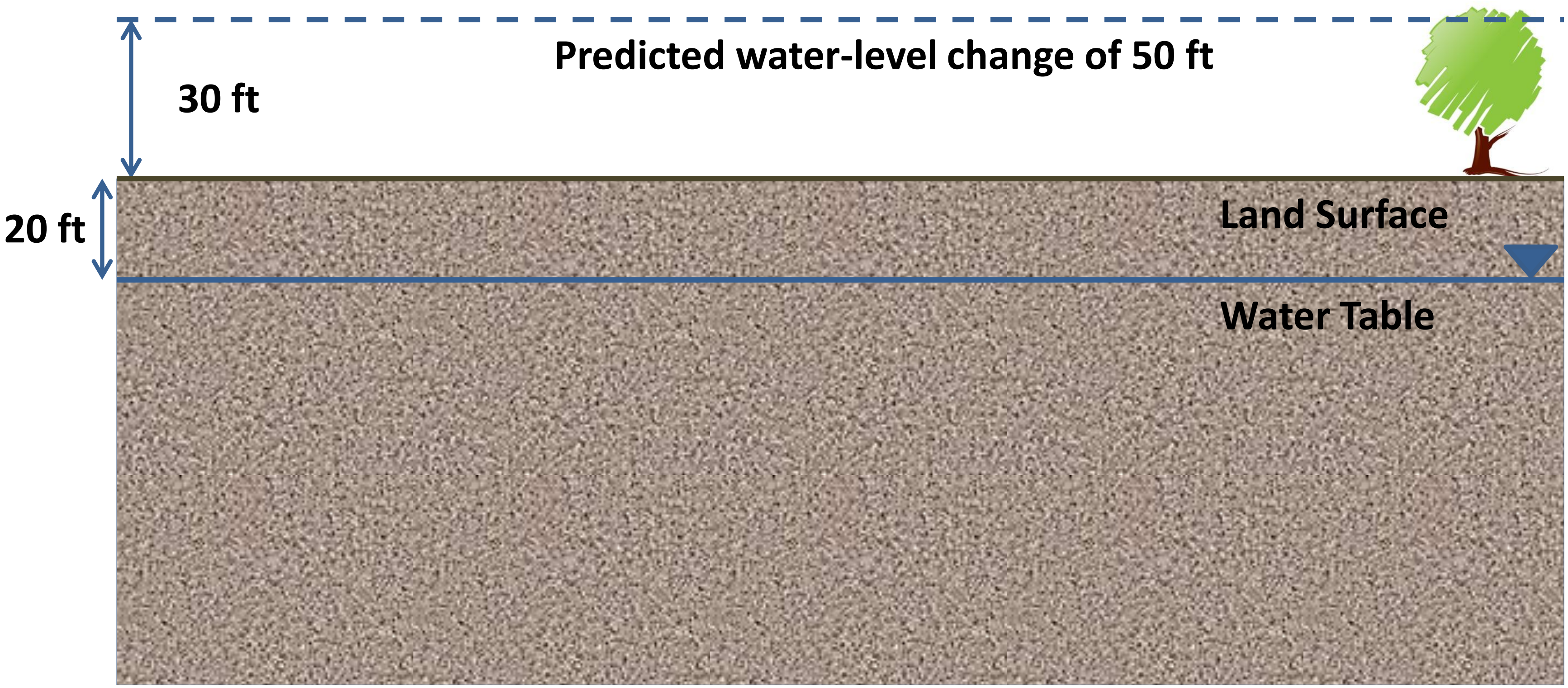
The model is telling us something...
Recharge Capacity

50 ft water-level change at 100,000 AF/yr Recharge

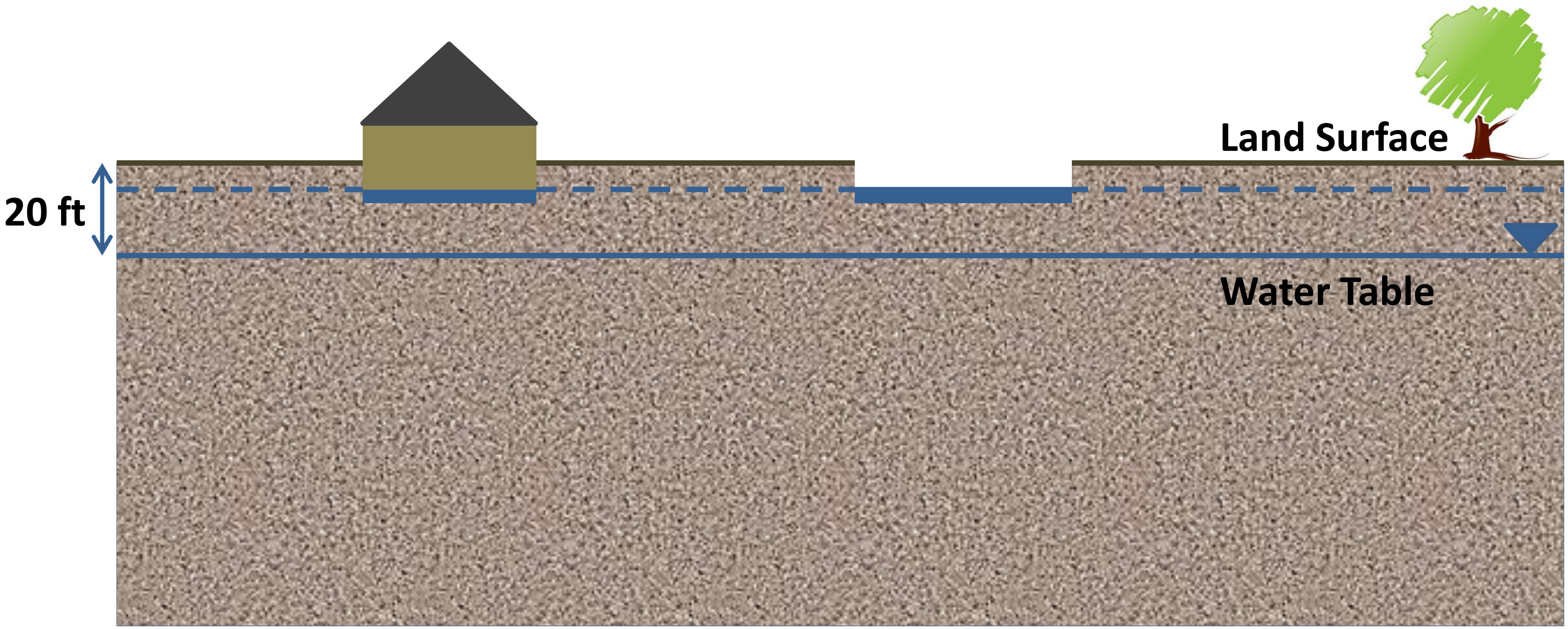
Recharge Capacity ≈ 100,000+ AF/yr



50 ft water-level change at 100,000 AF/yr Recharge
20 ft water-level change at 40,000 AF/yr Recharge
Recharge Capacity ≈ 40,000- AF/yr



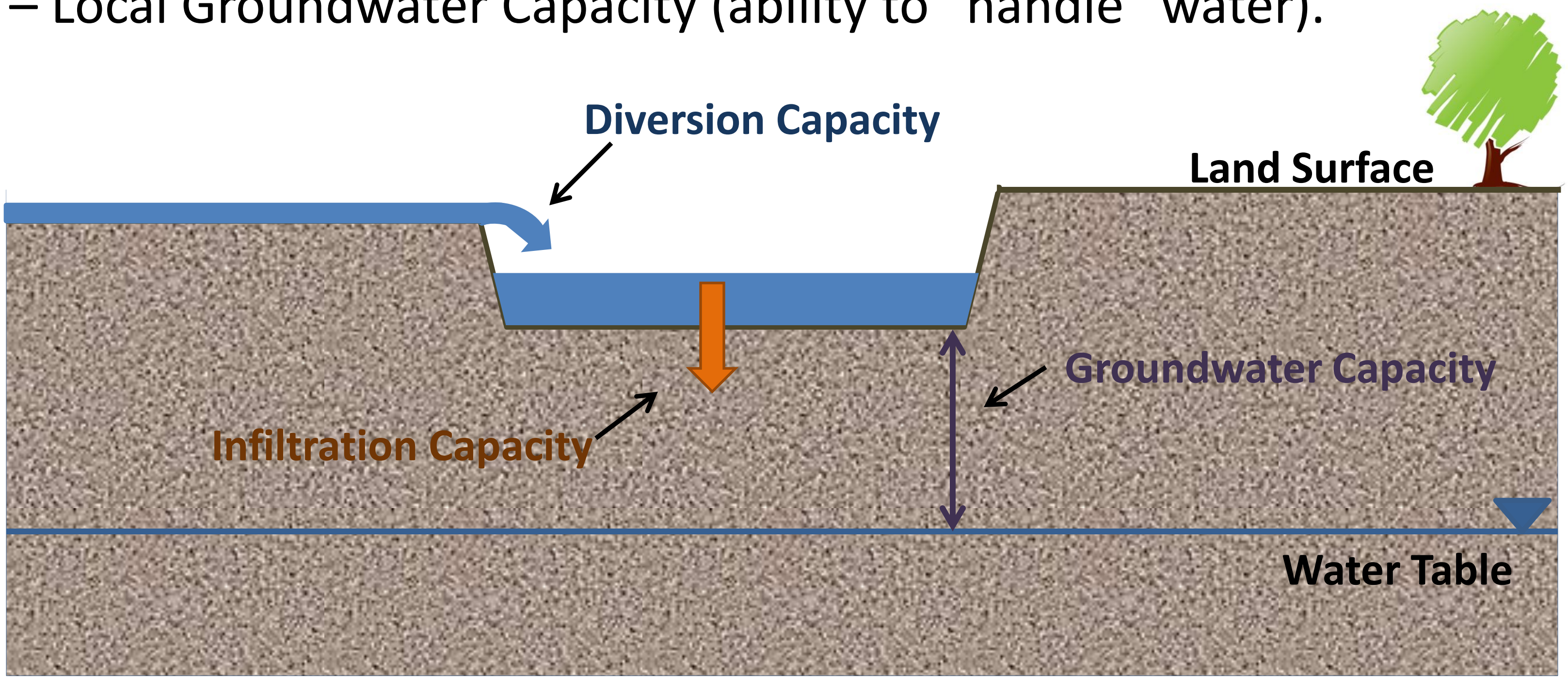
In determining if there is "enough room" for recharge, we must also consider factors like drains and basements, buried waste, and time of year. Furthermore, depth-to-water is only one factor in determining Recharge Capacity.



IDAHO Department of Water Resources

Recharge Capacity Factors

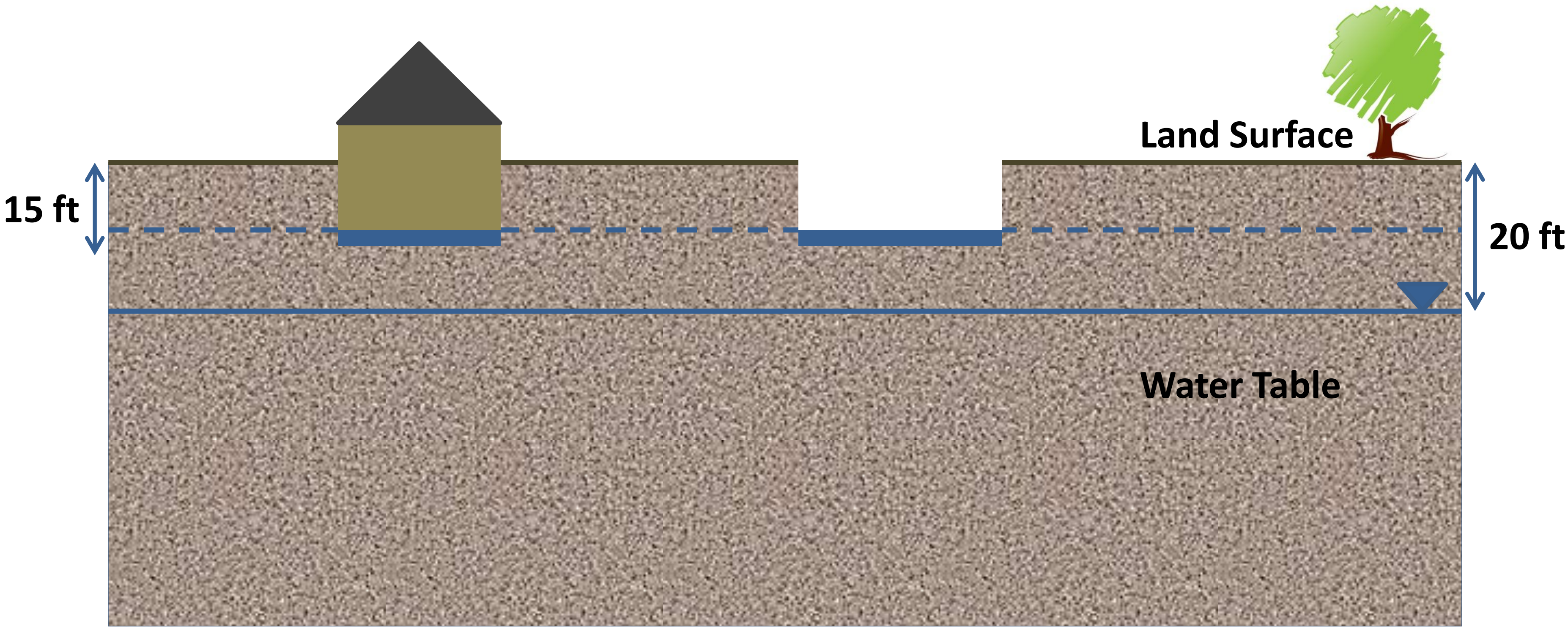
- Recharge Capacity involves several factors.
  - Site Diversion Capacity (ability to get water).
  - Site Infiltration Capacity (ability to accept water).
  - Local Groundwater Capacity (ability to “handle” water).

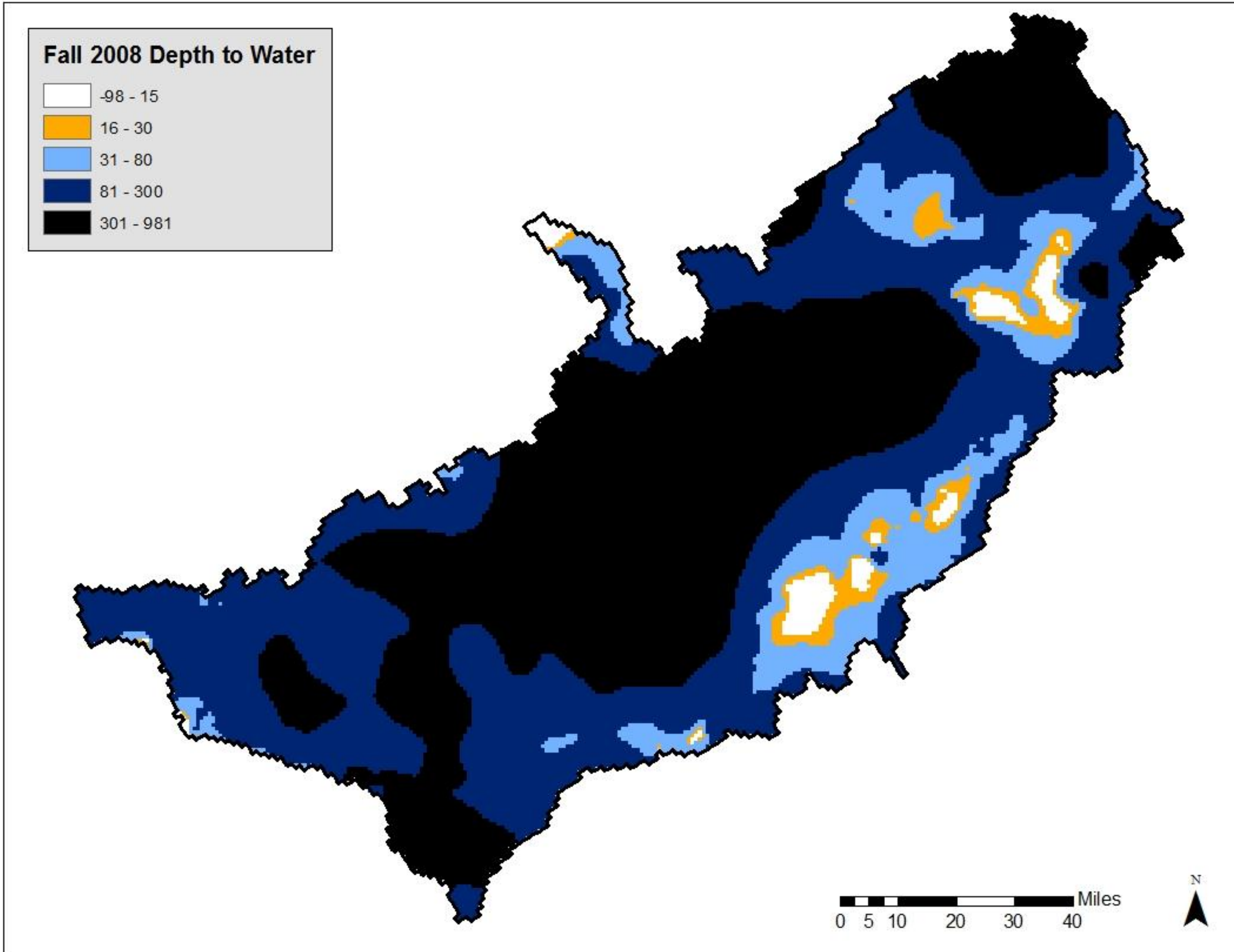


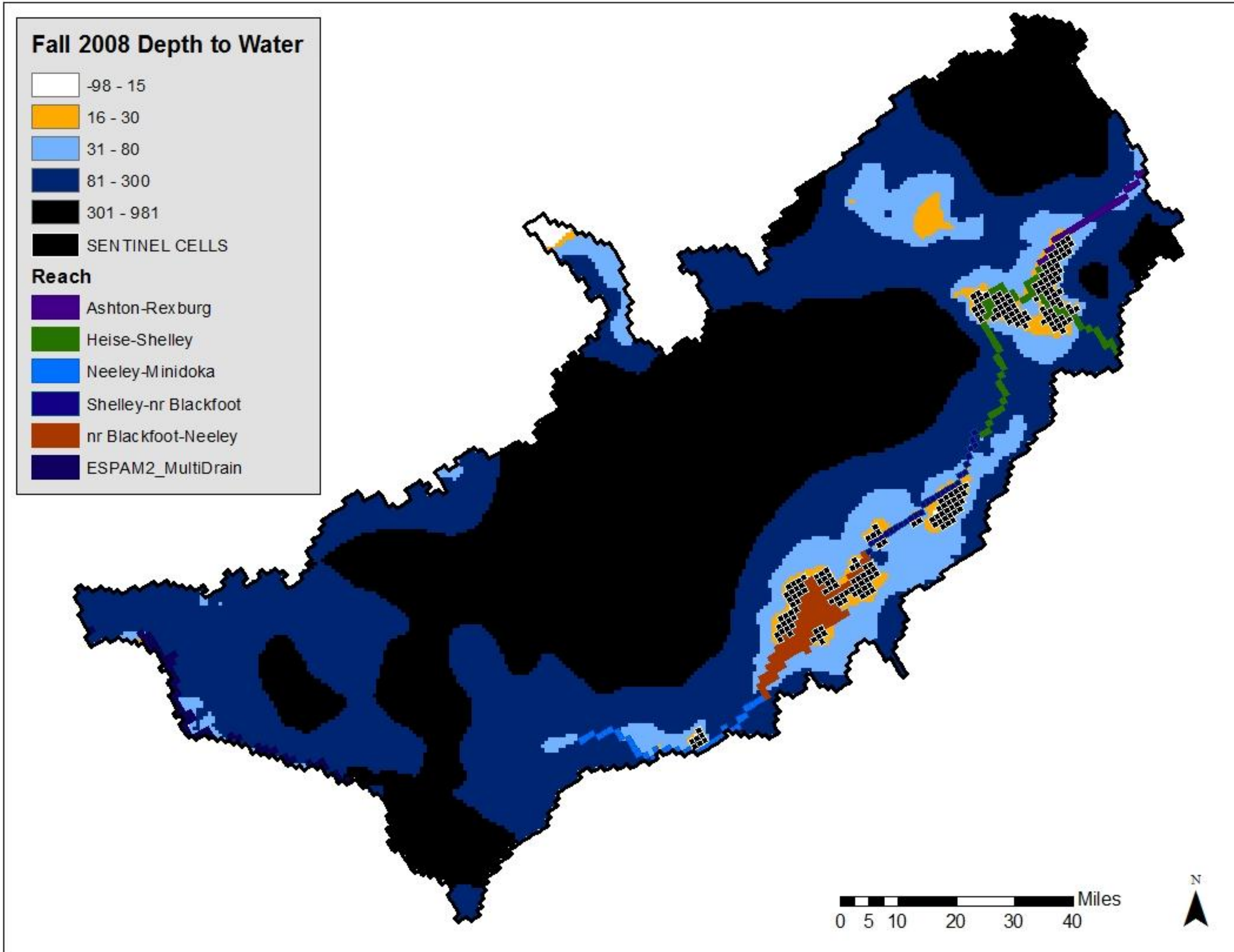
Assessment of Groundwater Capacity

- Groundwater conditions vary by season, and are based on the depth-to-water.
- Recharging in areas of deep groundwater means there is “enough room” to accept the recharge.
- Recharging in areas of shallow groundwater results in water **not going into aquifer storage**. In areas of shallow groundwater, recharge water is likely:
  - **AT RISK** of causing or exacerbating problems.
    - Basements, sewer system, foundations, buried waste, etc.
  - **AT RISK** of being wasted (effort and money).
    - Cycling recharge directly into drains, into returns, into places where attempts to dewater are already occurring.

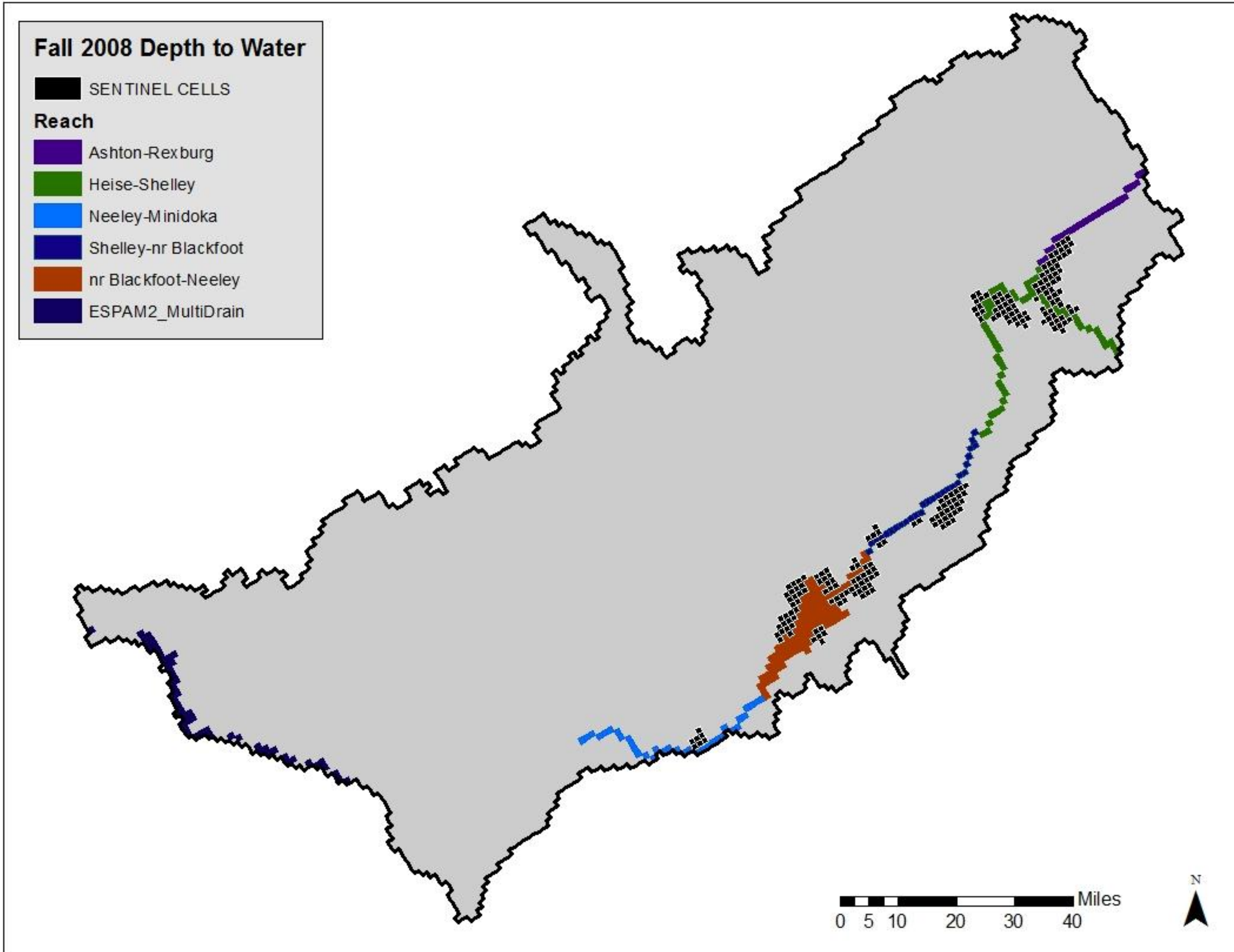
To determining if there is "enough room" for recharge, we need to determine a reasonable buffer between land surface and the water table. For ESPA recharge, I chose **15 ft**.




Fall 2008 Depth to Water
-98 - 15
16 - 30
31 - 80
81 - 300
301 - 981
Miles
0 5 10 20 30 40
N



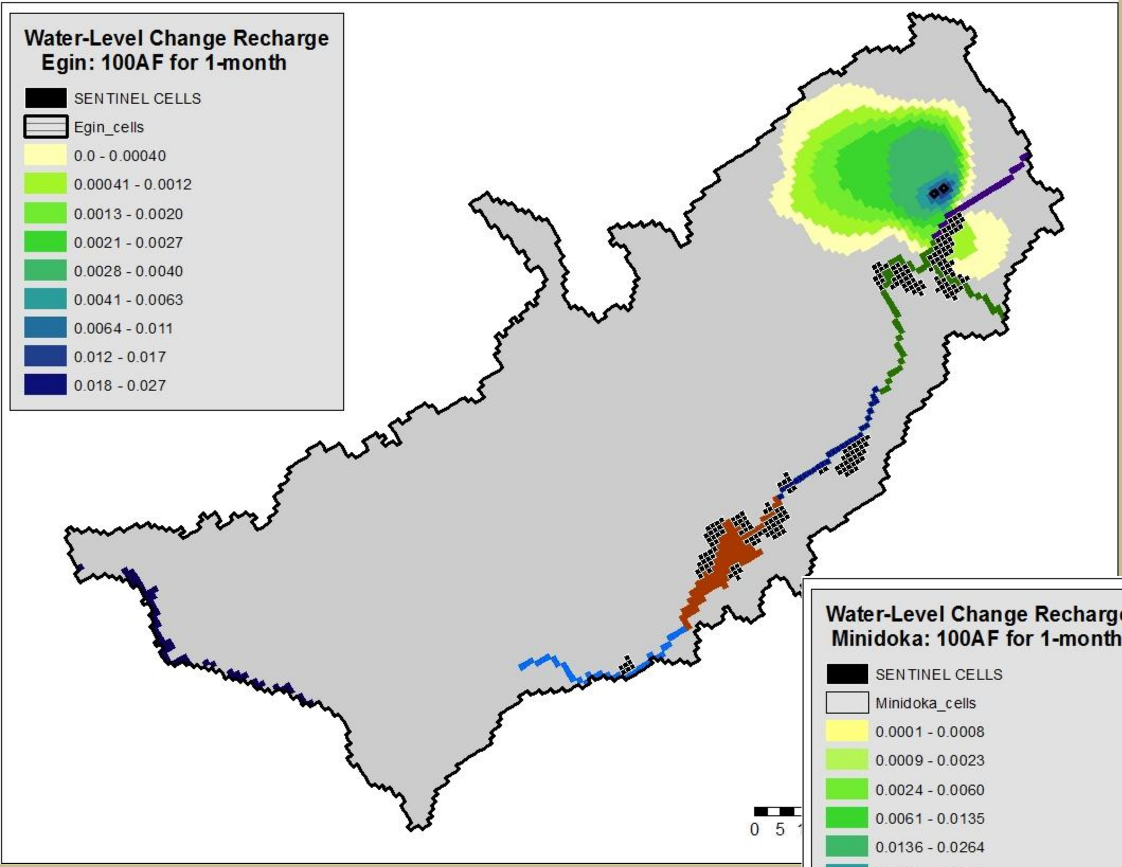
Fall 2008 Depth to Water
-98 - 15
16 - 30
31 - 80
81 - 300
301 - 981
SENTINEL CELLS
Reach
Ashton-Rexburg
Heise-Shelley
Neeley-Minidoka
Shelley-nr Blackfoot
nr Blackfoot-Neeley
ESPAM2_MultiDrain
Miles
0 5 10 20 30 40
N


Fall 2008 Depth to Water
SENTINEL CELLS
Reach
Ashton-Rexburg
Heise-Shelley
Neeley-Minidoka
Shelley-nr Blackfoot
nr Blackfoot-Neeley
ESPAM2_MultiDrain
Miles
0 5 10 20 30 40
N

How to Assess Recharge Relative to the 15-foot Buffer

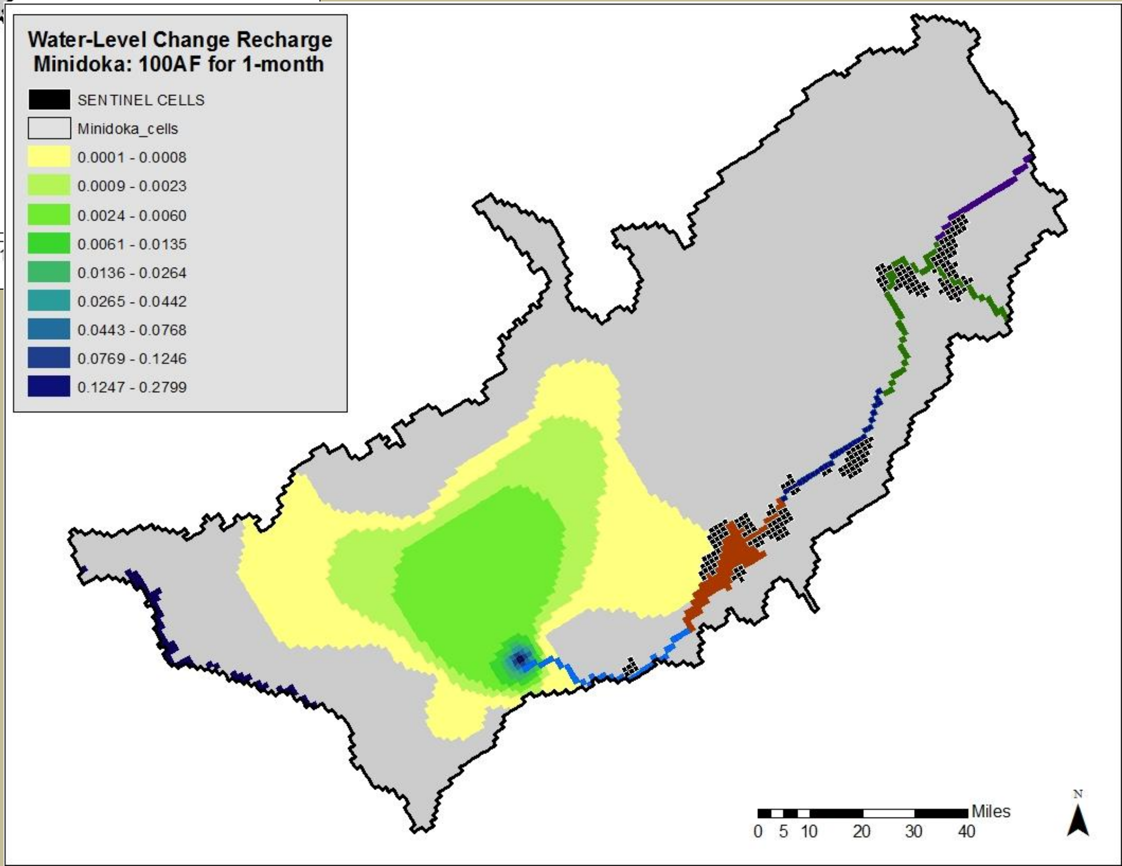
- Track water-level changes in areas with shallow groundwater.
    - Stop recharge when water levels change in areas with DTW<= 15 ft.
    - Any amount of change? Any shallow cell? All shallow cells?

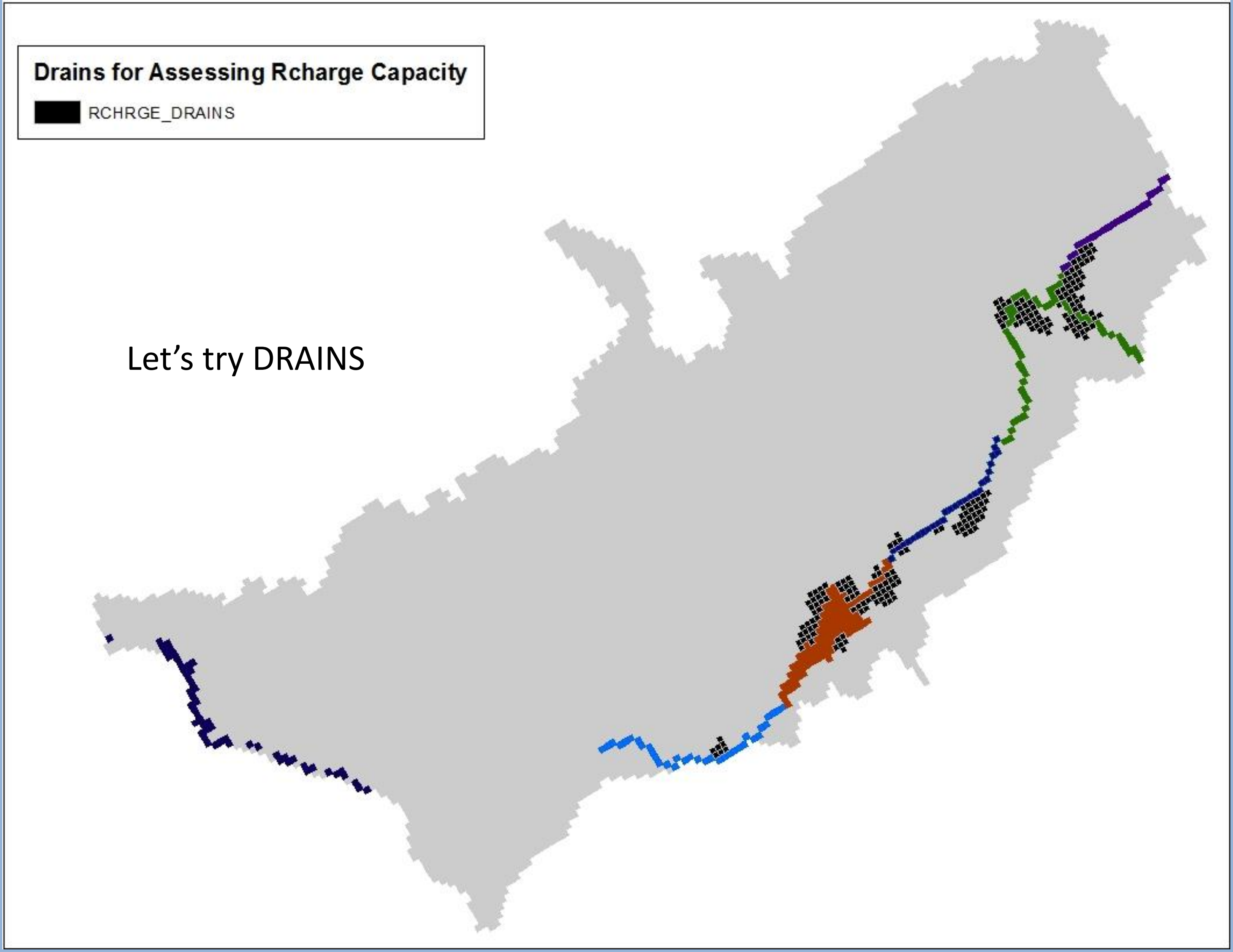
- Alter ESPAM to use DRAINS.



Tracking water-level changes can become complicated and aggressively limiting.

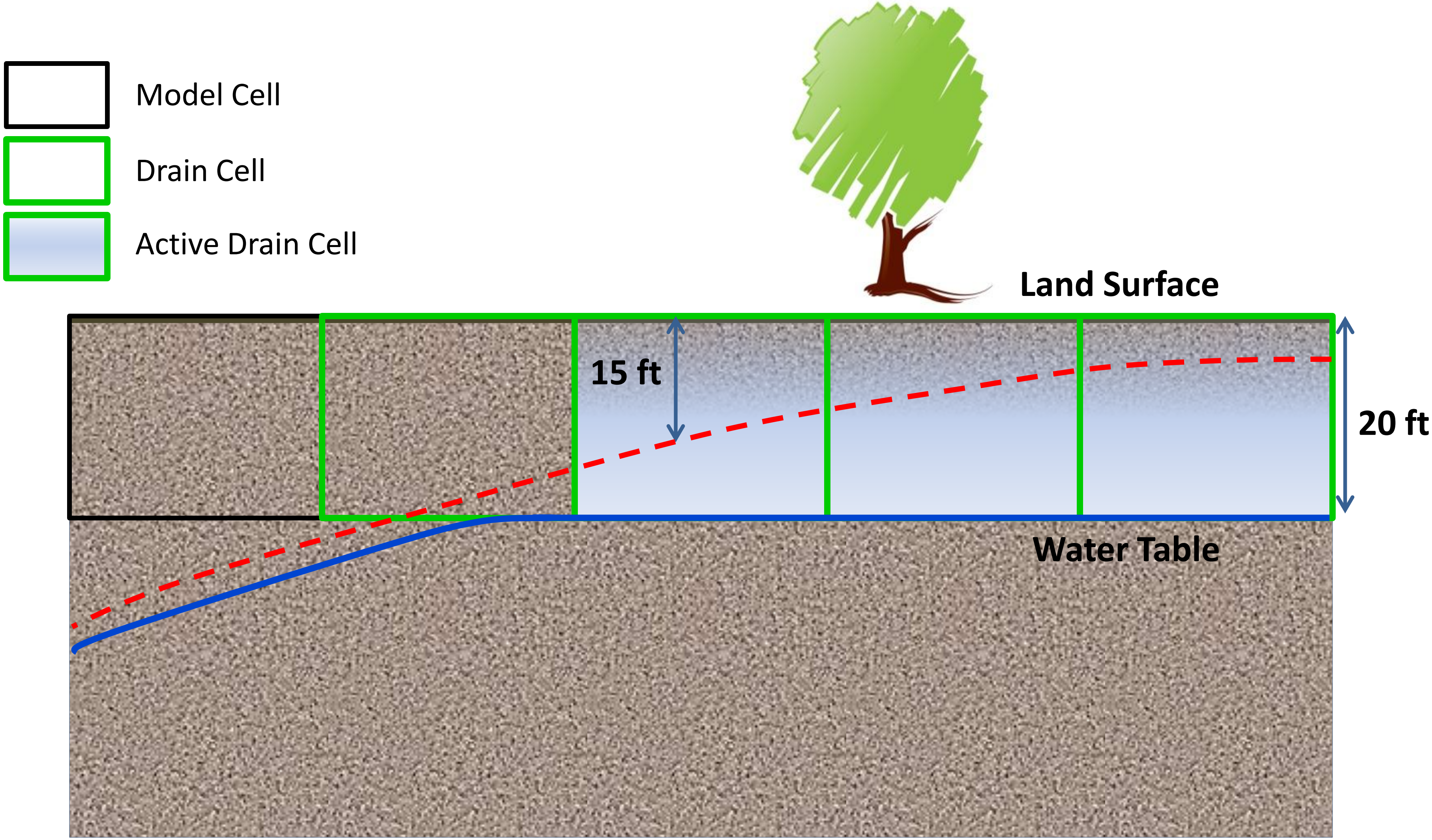
Stringent adherence to the 15-foot buffer limits recharge to very small volumes at most sites.





In an effort to determine Recharge Capacity, model cells with Fall 2008 depth-to-water less than 20 ft were converted into drains. Drains activate when depth-to-water is 15 ft.

- Cells with a Fall 2008 DTW <= 20 ft were modified to act as DRAINS.
- DRAIN cells become ACTIVE when recharge brings water within 15 ft of Land Surface.



Using Drains to Determine GW Recharge Capacity

- Drains are **indicators only**. We are not calculating discharge due to recharge.
- Drains set to arbitrarily large conductance to ensure flow (500,000 ft^2/day).
- Recharge stops when 5% of the recharge volume is captured in drains.
  - Not an insignificant amount, serves as indicator of recharge in shallow areas.
- Sites distant from shallow groundwater may never discharge 5% - use 100 AF as limit.

SPRING Recharge Limit due to Groundwater Conditions

Site	Recharge (AF)	SPRING FRACT	%Recharge TEST	SPRING VOLIME (AF)	100 AF TEST	GW Recharge Capacity
Aberdeen	2,300	0.043	more	97	done	2,300
Egin	5,000	0.020	more	99	done	5,000
FMeast	17,000	0.006	more	98	done	17,000
GFeeder	20,000	0.001	more	12	more	20,000 +
Hilton	3,200	0.031	more	100	done	3,200
Idaho	8,500	0.012	more	101	done	8,500
MilGood	19,600	0.000	more	2	more	20,000 +
Minidoka	20,000	0.001	more	18	more	20,000 +
MP31	20,000	0.000	more	1	more	20,000 +
Northside	20,000	0.000	more	0	more	20,000 +
Nsweden	20,000	0.005	more	98	done	20,000 +
Shoshone	20,000	0.000	more	3	more	20,000 +
Southwest	20,000	0.000	more	0	more	20,000 +

FALL Recharge Limit due to Groundwater Conditions

Site	Recharge (AF)	FALL FRACT	% Recharge TEST	FALL VOLUME (AF)	100 AF TEST	GW Recharge Capacity
Aberdeen	100	0.062	done	6	NA	< 100
Egin	3,800	0.028	more	104	done	3,800
FMeast	12,300	0.008	more	100	done	12,300
GFeeder	100	0.081	less	8	NA	< 100
Hilton	2,800	0.036	more	98	done	2,800
Idaho	100	0.084	less	8	NA	< 100
MilGood	19,600	0.000	more	1	more	20,000 +
Minidoka	20,000	0.001	more	16	more	20,000 +
MP31	20,000	0.000	more	1	more	20,000 +
Northside	20,000	0.000	more	0	more	20,000 +
Nsweden	3,800	0.028	more	105	done	3,800
Shoshone	20,000	0.000	more	2	more	20,000 +
Southwest	20,000	0.000	more	0	more	20,000 +

The Process to Determine GW Recharge Capacity

1. Convert cells with Fall 2008 DTW<= 20 ft. to DRAINS.
2. DRAINS activate when recharge brings water to within 15-ft of land surface.
3. Stop recharge when 5% of recharge or 100 AF flow though drains.
4. Use recharge volume determined above in calibrated ESPAM2.1 to calculated recharge impacts.

Assessing Recharge Capacity

- Assessing Recharge Capacity involves several steps.
  - Assess the Local Hydrogeologic Setting by looking at geology.
  - Assess Infiltration Capacity by looking infiltration information.
  - Assess the Groundwater Capacity by looking at seasonal depth-to-water.
  - Assess Site Diversion Capacity by talking to managers and reviewing diversion data.
  - Model runs with site appropriate data and realistic time-frames.

Assessment of Site Diversion Capacity

Diversion Capacity

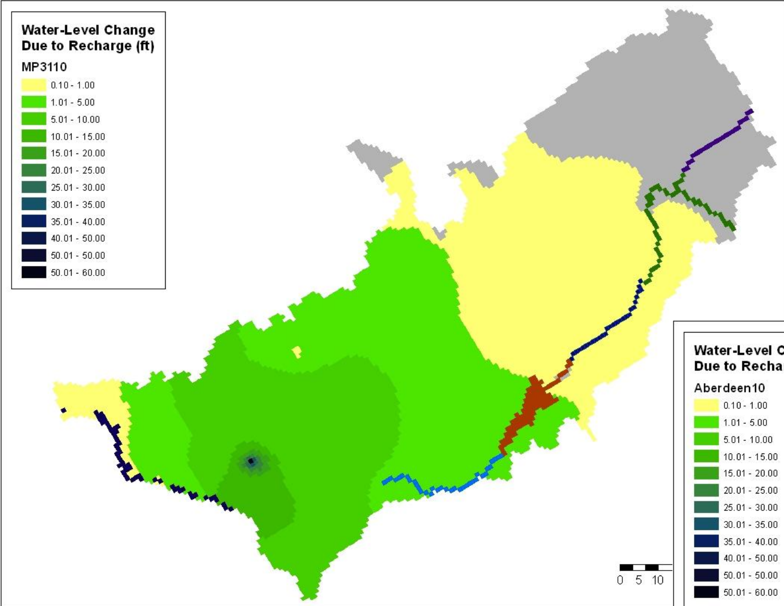
Site	Diversion Capacity (AF/month)	Comments
Aberdeen	10,900	Based on historic recharge diversions.
Egin	15,300	Based on historic recharge diversions.
FMeast	10,900	Based on historic recharge diversions.
GFeeder	14,800	Based on historic recharge diversions.
Hilton	7,700	Based on historic recharge diversions.
Idaho	1,000	Based on historic recharge diversions.
MilGood	46,500	Based on historic recharge diversions and MP31 design.
Minidoka	6,100	Based on proposed capacity of recharge site.
MP31	18,400	Based on proposed capacity of recharge site.
Northside	30,700	Based on estimated 500 cfs diversion capacity.
Nsweden	3,200	Based on historic recharge diversions.
Shoshone	19,900	Based on historic recharge diversions.
Southwest	3,600	Based on historic recharge diversions.

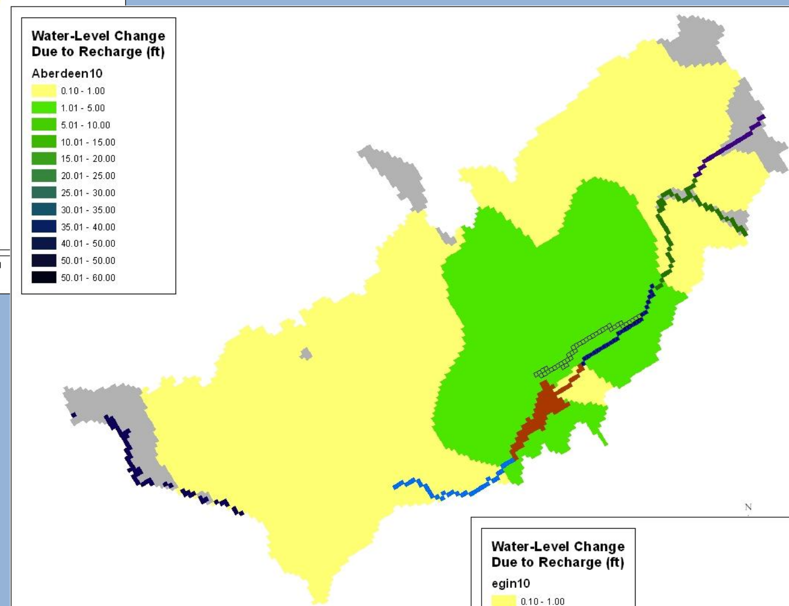
Assessment of Infiltration Capacity

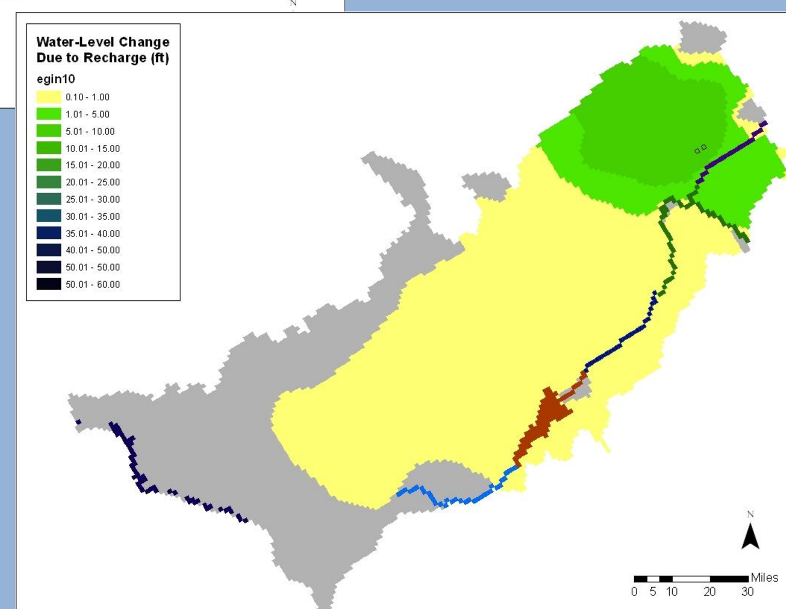
Infiltration Capacity		
Site	Infiltration Cap (AF/month)	Source
Aberdeen	6,600	Calibrated ESPAM2.1 canal seepage rate.
Egin	2,200	Published data from 2009 IWRRI recharge report.
FMeast	6,500	Calibrated ESPAM2.1 canal seepage rate.
GFeeder	5,600	Calibrated ESPAM2.1 canal seepage rate.
Hilton	7,600	Published data from 1996 IWRRI recharge report.
Idaho	300	Calibrated ESPAM2.1 canal seepage rate.
MilGood	8,200	Discussions with canal company manager.
Minidoka	6,100	Assumed from design, injected.
MP31	24,200	Discussions with canal company manager.
Northside	22,200	Published data from 1996 IWRRI recharge report.
Nsweden	1,600	Calibrated ESPAM2.1 canal seepage rate plus recharge pond infiltration data.
Shoshone	21,200	Discussions with canal company manager.
Southwest	3,600	Assumed from diversion, injected.

Lets put it all together

Recharge at 100,000 AF/yr is instructive; Illustrating how the aquifer responds to Recharge.







100,000 AF/yr allows us to see how the aquifer Properties influence Recharge Benefits.

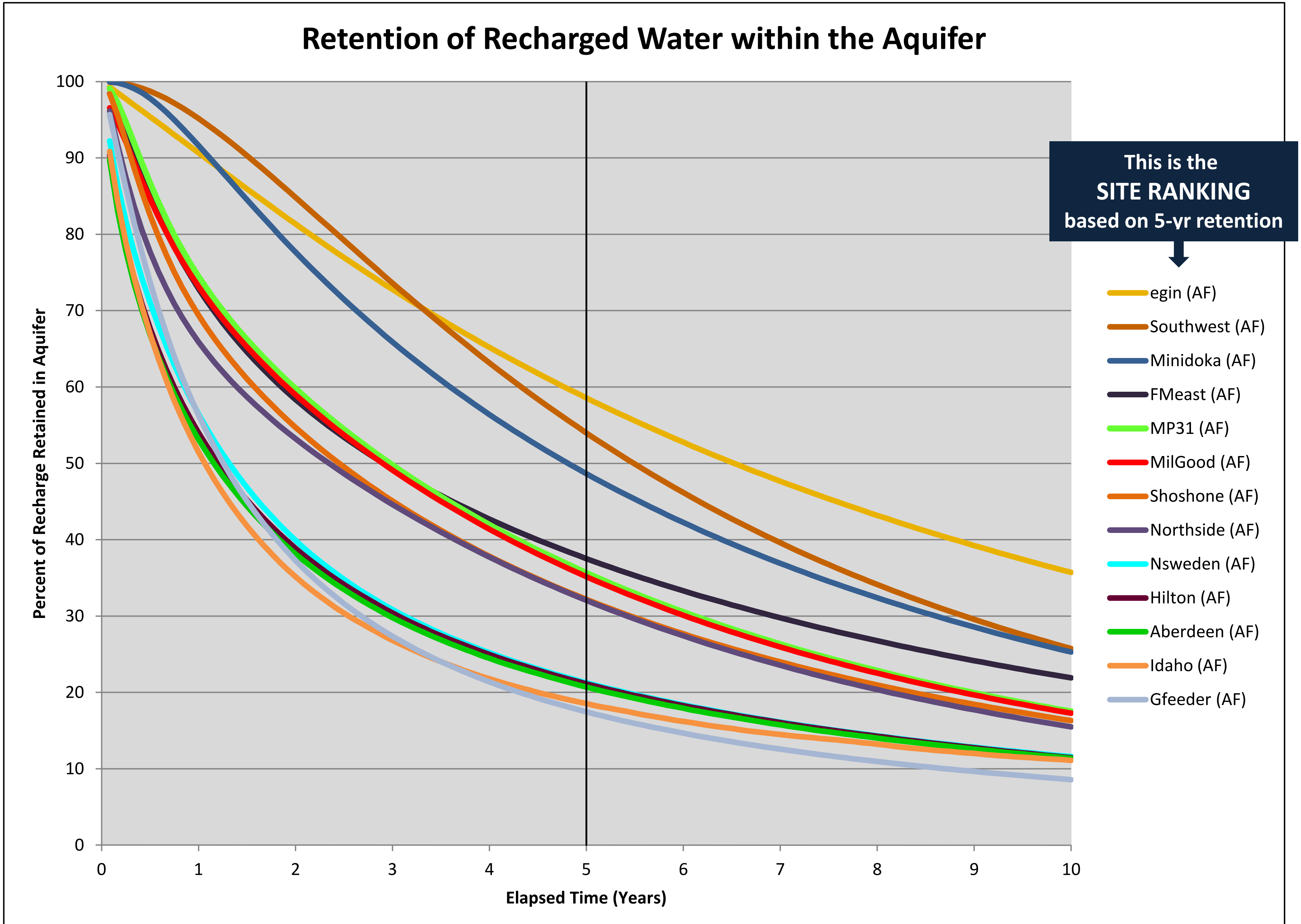
- Location is key
- Mud Lake “Barrier” and Great Rift
- Proximity to connected river reach

Physical Limitations to Recharge

The highlighted cells illustrate the physical limitation to Recharge at each site.

SPRING Physical Limitations to Recharge			
Site	**Diversion Capacity**	**Infiltration Capacity**	**GW Capacity**
Aberdeen	10,900	6,600	2,300
Egin	15,300	2,200	5,000
FMeast	10,900	6,500	17,000
Gfeeder	14,800	5,600	20,000
Hilton	7,700	7,600	3,200
Idaho	1,000	300	8,500
MilGood	46,500	8,200	20,000
Minidoka	6,100	6,100	20,000
MP31	18,400	24,200	20,000
Northside	30,700	22,200	30,000
Nsweden	3,200	1,600	20,000
Shoshone	19,900	21,200	20,000
Southwest	3,600	3,600	20,000

FALL Physical Limitations to Recharge			
Site	**Diversion Capacity**	**Infiltration Capacity**	**GW Capacity**
Aberdeen	10,900	6,600	100
Egin	15,300	2,200	3,800
FMeast	10,900	6,500	12,300
Gfeeder	14,800	5,600	100
Hilton	7,700	7,600	2,800
Idaho	1,000	300	100
MilGood	46,500	8,200	20,000
Minidoka	6,100	6,100	20,000
MP31	18,400	24,200	20,000
Northside	30,700	22,200	30,000
Nsweden	3,200	1,600	3,800
Shoshone	19,900	21,200	20,000
Southwest	3,600	3,600	20,000



Retention of Recharged Water within the Aquifer
100
90
80
70
60
50
40
30
20
10
0
Percent of Recharge Retained in Aquifer
0
1
2
3
4
5
6
7
8
9
10
Elapsed Time (Years)
This is the
SITE RANKING
based on 5-yr retention
egin (AF)
Southwest (AF)
Minidoka (AF)
FMeast (AF)
MP31 (AF)
MilGood (AF)
Shoshone (AF)
Northside (AF)
Nsweden (AF)
Hilton (AF)
Aberdeen (AF)
Idaho (AF)
Gfeeder (AF)

Rank: Aquifer Storage Efficiency

SPRING Priority List

Rank	5-year Retention	Recharge Limit (AF/month)
1. Egin	59%	2,200
2. Southwest	54%	3,600
3. Minidoka	49%	6,100
4. FMeast	38%	6,500
5. MP31	36%	18,400
6. MilGood	35%	8,200
7. Shoshone	32%	19,900
8. Northside	32%	22,200
9. NSweden	21%	1,600
10. Hilton	21%	3,200
11. Aberdeen	21%	2,300
12. Idaho	19%	300
13. GFeeder	17%	5,600

FALL Priority List

Rank	5-year Retention	Recharge Limit (AF/month)
1. Egin	59%	2,200
2. Southwest	54%	3,600
3. Minidoka	49%	6,100
4. FMeast	38%	6,500
5. MP31	36%	18,400
6. MilGood	35%	8,200
7. Shoshone	32%	19,900
8. Northside	32%	22,200
9. NSweden	21%	1,600
10. Hilton	21%	2,800
11. Aberdeen	21%	NA
12. Idaho	19%	NA
13. GFeeder	17%	NA

Rank: Efficiency and Recharge Limitations

SPRING Priority List

Rank	5-year Retention	Recharge Limit (AF/month)	Volume in Aquifer after 5 Years (AF)
1. Northside	32%	22,200	7,100
2. MP31	36%	18,400	6,600
3. Shoshone	32%	19,900	6,400
4. Minidoka	49%	6,100	3,000
5. MilGood	35%	8,200	3,000
6. FMeast	38%	6,500	2,400
7. Southwest	54%	3,600	1,900
8. Egin	59%	2,200	1,300
9. GFeeder	17%	5,600	1,000
10. Hilton	21%	3,200	700
11. Aberdeen	21%	2,300	500
12. NSweden	21%	1,600	300
13. Idaho	19%	300	<100

FALL Priority List

Rank	5-year Retention	Recharge Limit (AF/month)	Volume in Aquifer after 5 Years (AF)
1. Northside	32%	22,200	7,000
2. MP31	36%	18,400	6,600
3. Shoshone	32%	19,900	6,400
4. Minidoka	49%	6,100	3,000
5. MilGood	35%	8,200	3,000
6. FMeast	38%	6,500	2,400
7. Southwest	54%	3,600	1,900
8. Egin	59%	2,200	1,300
9. Hilton	21%	2,800	600
10. NSweden	21%	1,600	300
11. Aberdeen	21%	NA	0
12. Idaho	19%	NA	0
13. GFeeder	17%	NA	0

Any Questions?

Ag Weekly Online: Twin Falls, Idaho - Windows Internet Explorer

http://www.agweekly.com/articles/2008/11/02/news/ag_news/news48.txt

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Urban-rural interests squabble over water

By Cindy Snyder, Ag Weekly correspondent

Friday, October 24, 2008 2:02 PM CDT

BOISE, Idaho — Neighbors across the West have squabbled over water and

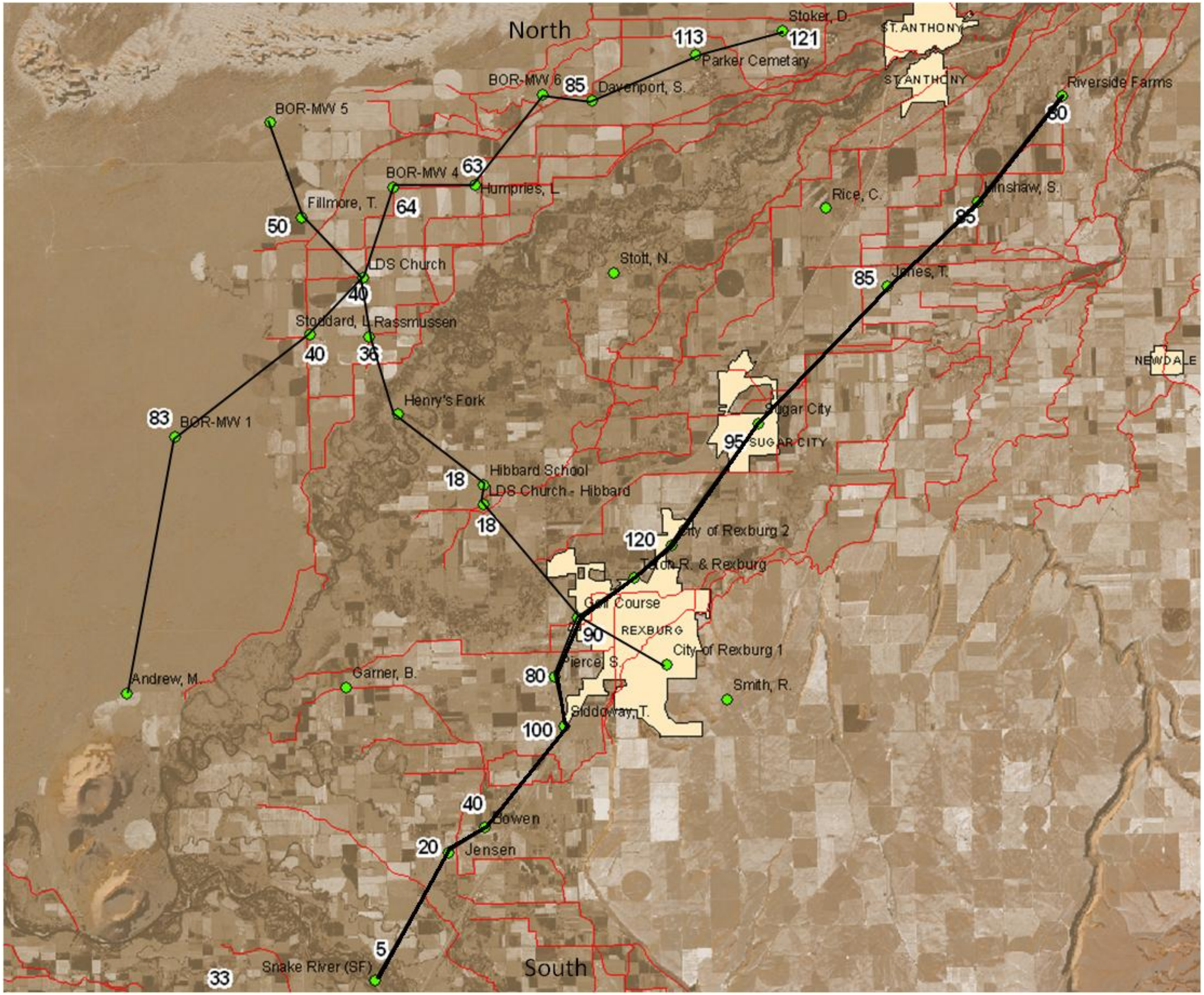
In eastern Idaho, flooding is an issue for an entirely different reason. A high ground-water table — 3 feet t o 4 feet — in the Rigby area means many homes have flooded basements starting around the 4th of July and lasting through the rest of the irrigation year.

The city of Rigby has built a pump station to pipe subwater from areas within city limits to a pond outside of town. H. Roger Warner, a hydrologist from Rigby, questions the wisdom of a state law that encourages the use of surface water over ground water to irrigate subdivisions.

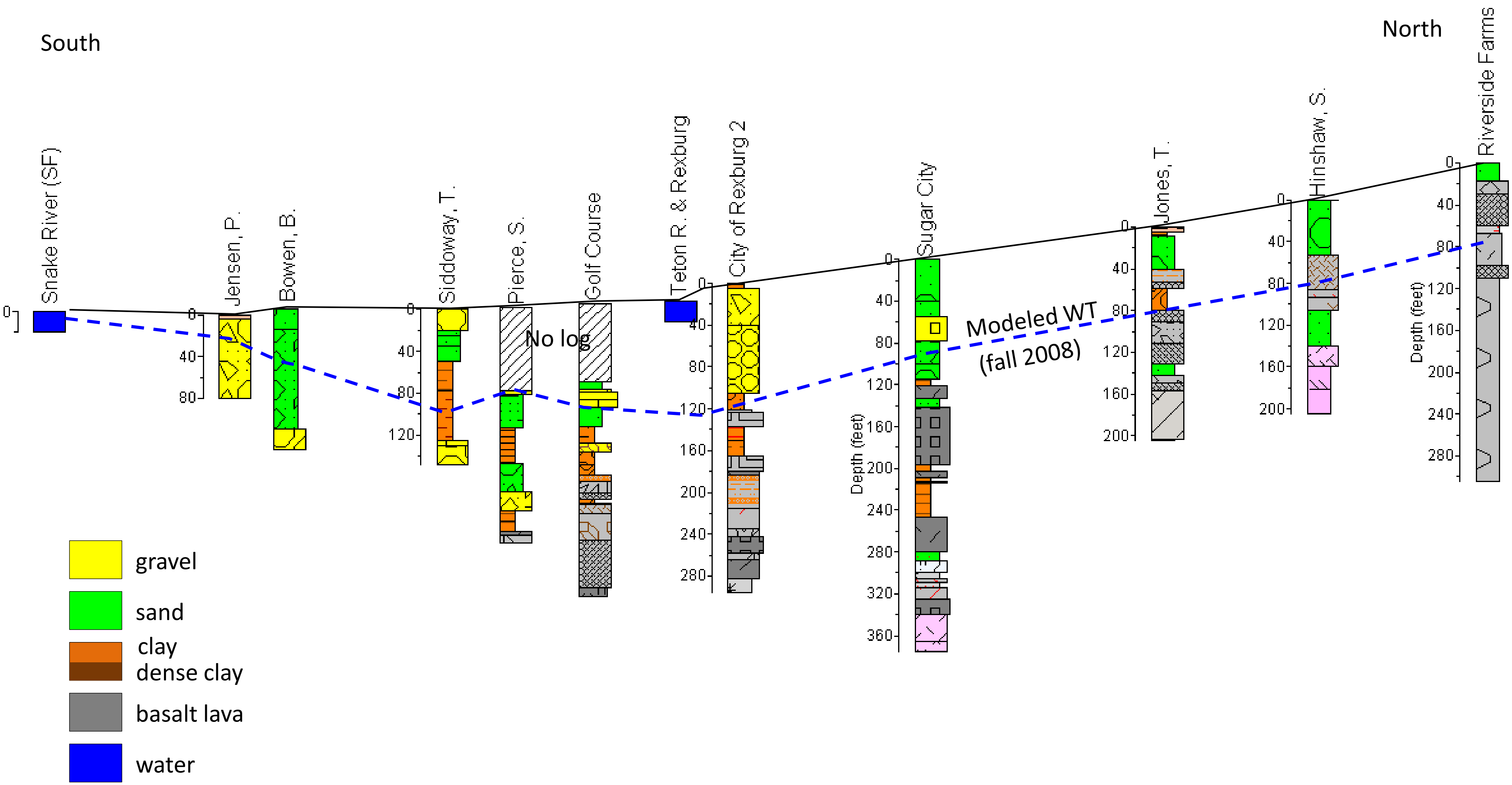
Error on page. Internet 150%

Shallow depths-to-groundwater already cause problems in some areas.

Fremont-Madison East Recharge Area

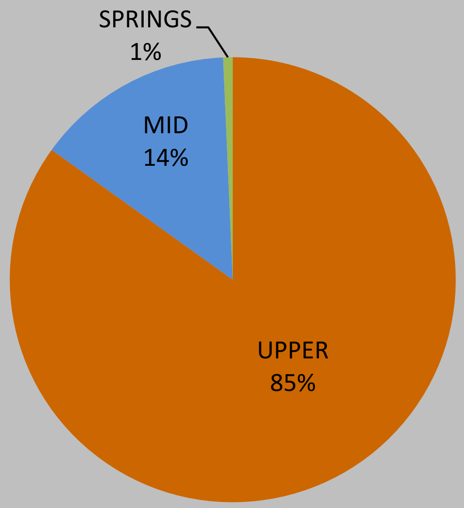


Rexburg Area Cross Section



Horizontal Distance = 19 miles
Vertical Exaggeration = 75

Summary of Recharge at Fremont-Madison East



Ultimate Fate of Recharged Water

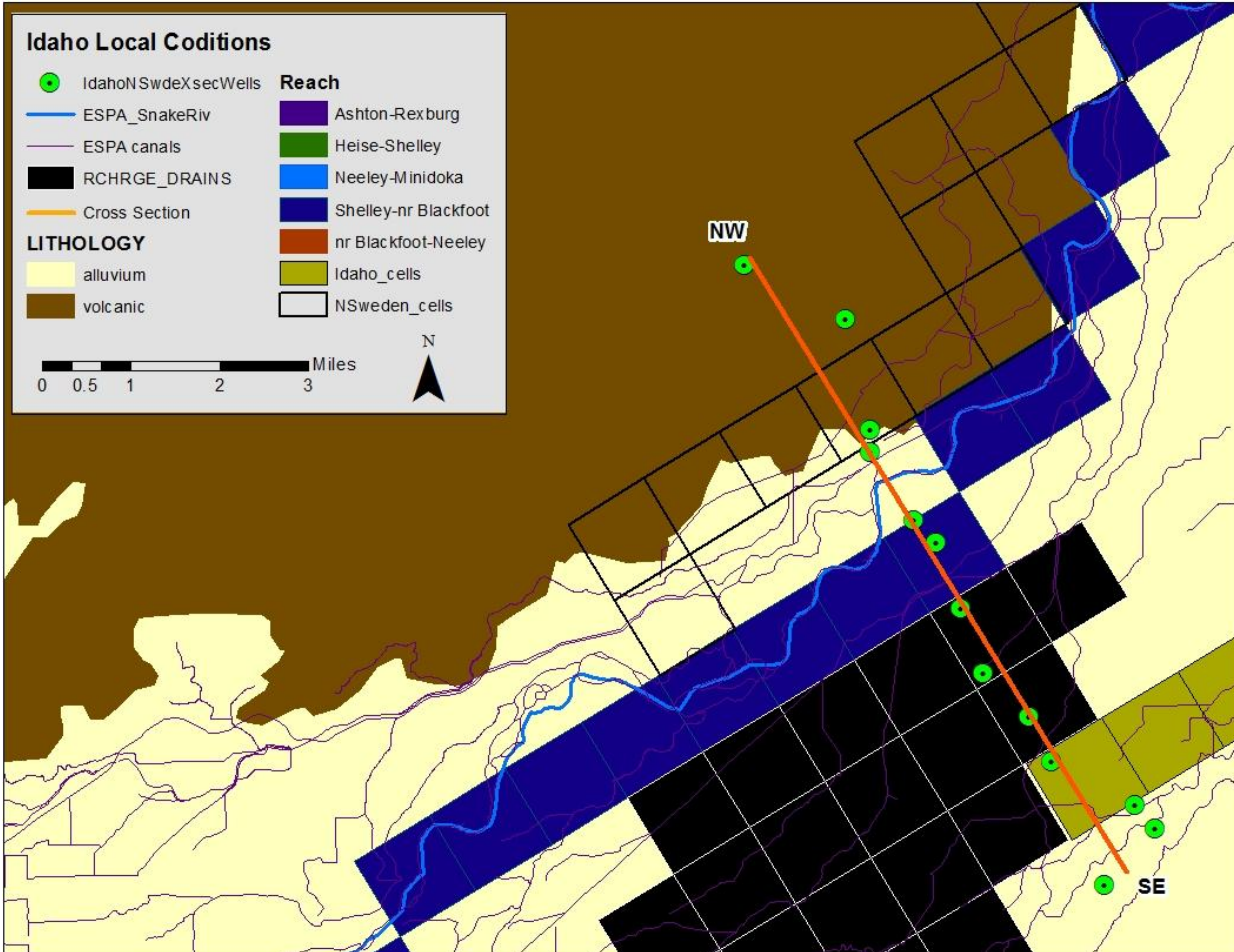
- Recharge via canal seepage and off-canal site.
- Subsurface is primarily sediments over basalt.
- Located near an area of shallow groundwater.
- Majority of recharge water discharges: Upper Reaches (Henry's Fork).
- Recharge Limited by: **Infiltration Capacity**.

Aquifer Retention 5 years

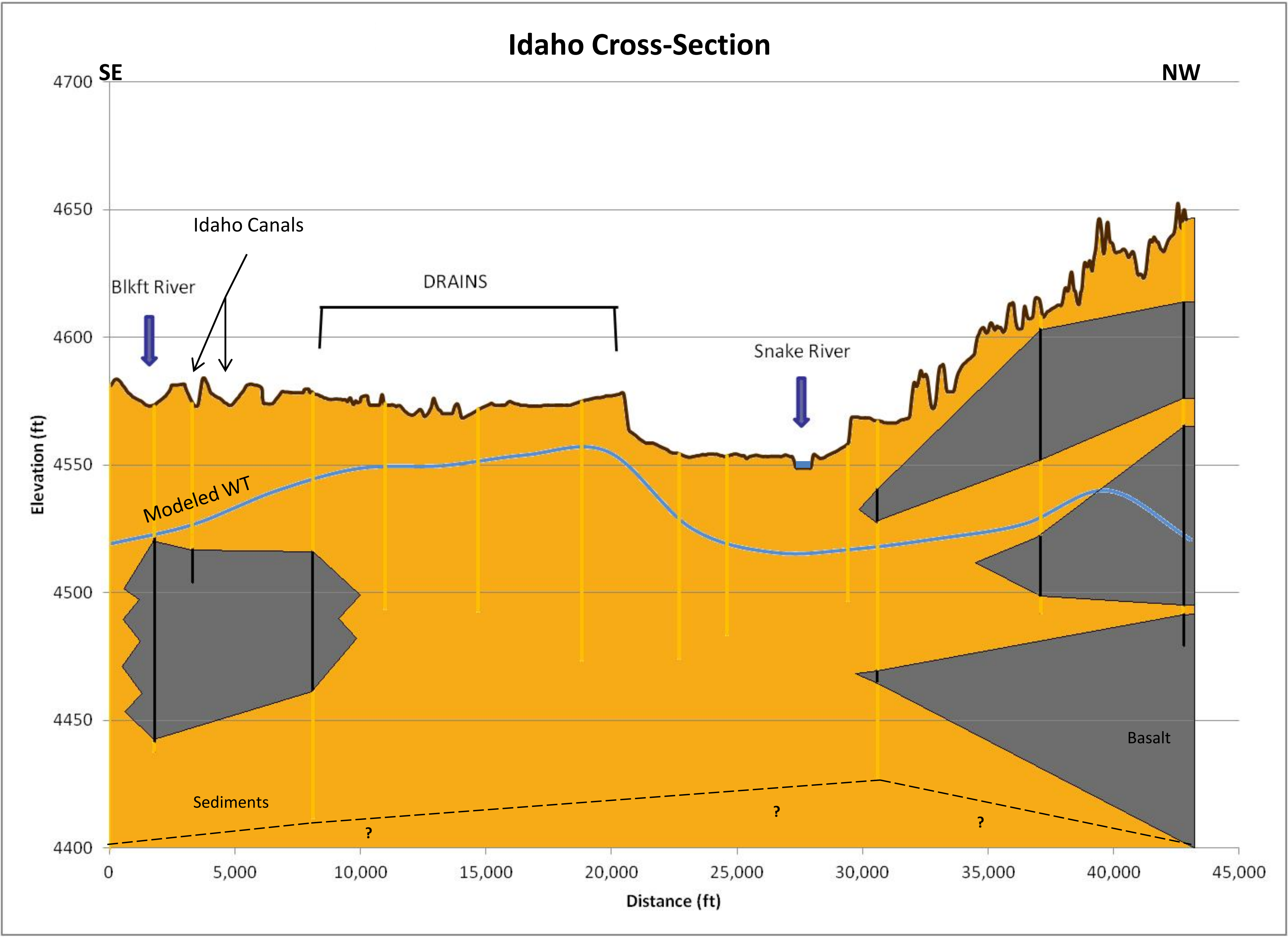
	Rank (of 13)	Retention (%)
SPRING	4	38
FALL	4	38

Ability to Benefit Aquifer

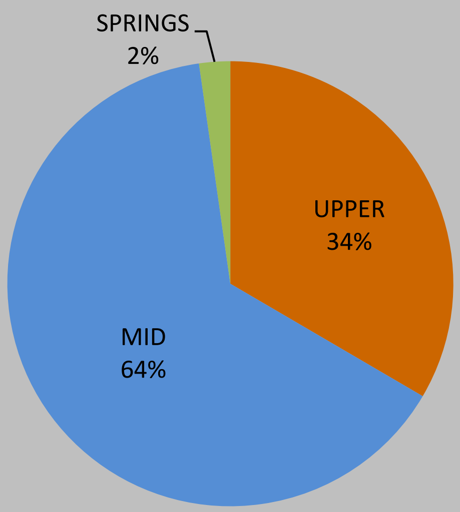
	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	6,500	2,400	10
FALL	6,500	2,400	10



Idaho Local Coditions
IdahoNSwdeXsecWells
ESPA_SnakeRiv
ESPA canals
RCHRGE_DRAINS
Cross Section
LITHOLOGY
alluvium
volcanic
Reach
Ashton-Rexburg
Heise-Shelley
Neeley-Minidoka
Shelley-nr Blackfoot
nr Blackfoot-Neeley
Idaho_cells
NSweden_cells
Miles
0
0.5
1
2
3
N
NW
SE


Idaho Cross-Section
SE
NW
Idaho Canals
Blkft River
DRAINS
Snake River
Modeled WT
Basalt
Sediments
?
?
?
Elevation (ft)
Distance (ft)
4700
4650
4600
4550
4500
4450
4400
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000

Summary of Recharge at Idaho



Ultimate Fate of Recharged Water

- Recharge via canal seepage.
- Subsurface is primarily sediments.
- Located near an area of shallow groundwater.
- Majority of recharge water discharges: Middle Reaches.
- Recharge Limited by: Spring-**Infiltration Capacity**; Fall- **Shallow Groundwater**.

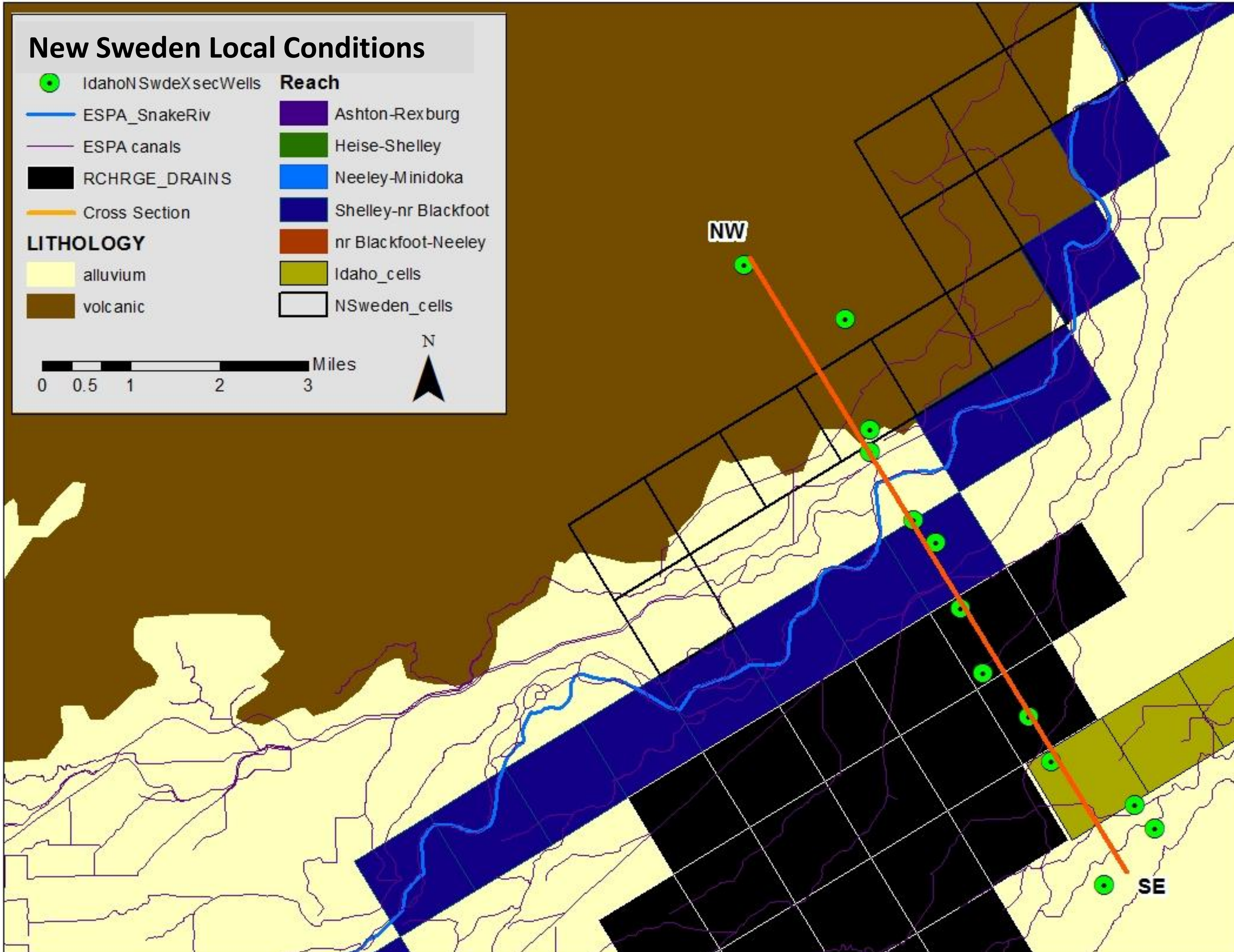
Aquifer Retention 5 years

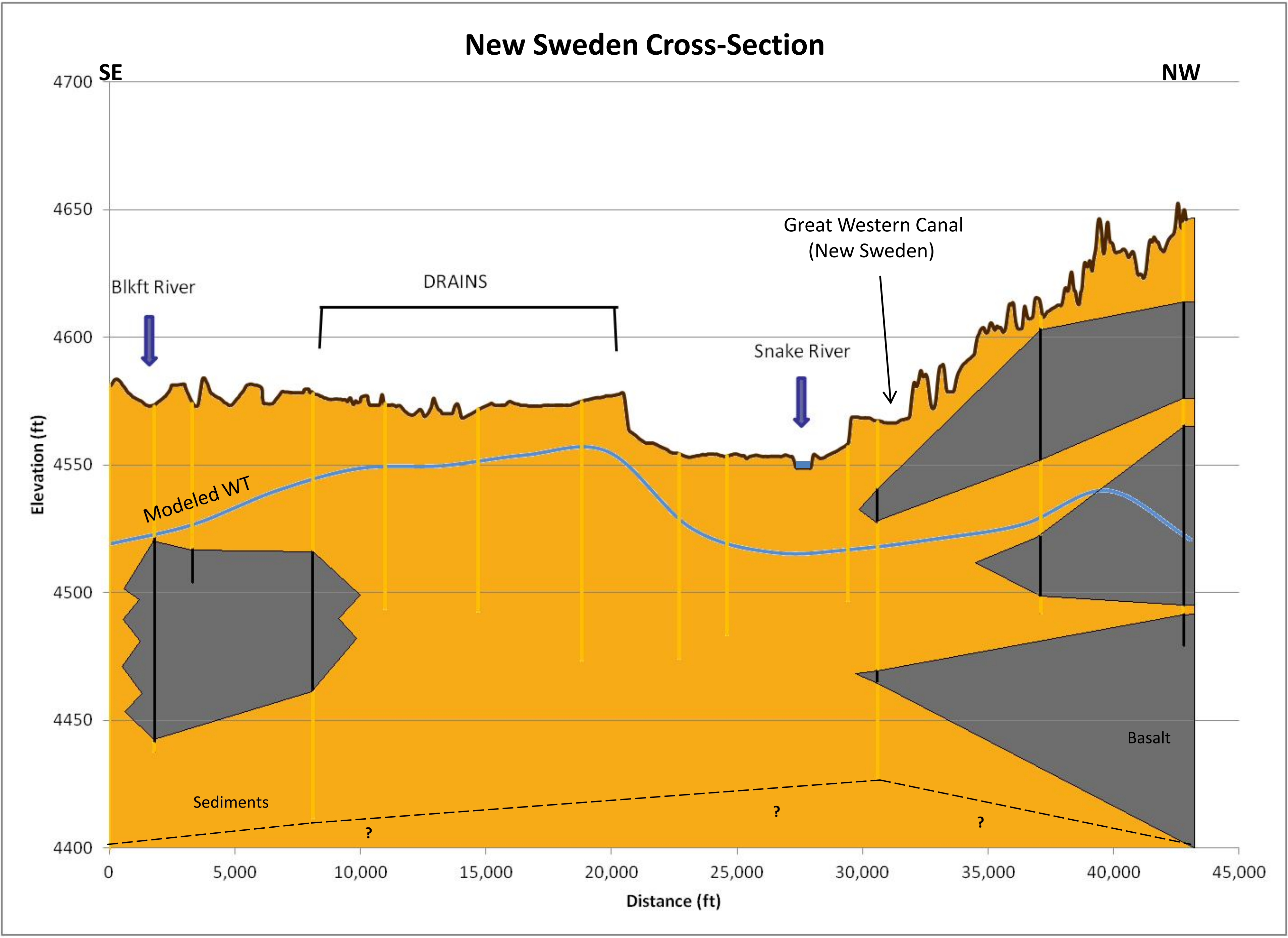
	Rank (of 13)	Retention (%)
SPRING	12	19
FALL	No Recharge	NA

Ability to Benefit Aquifer

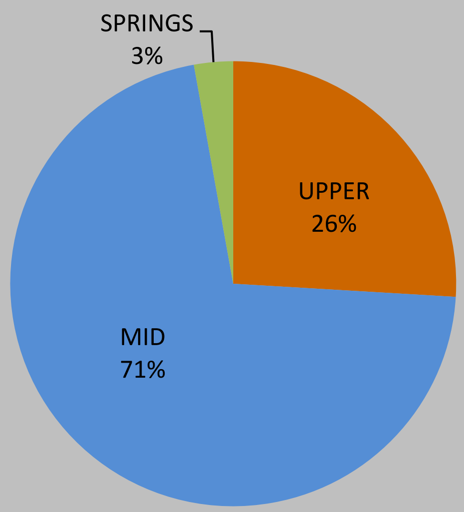
	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	300	< 100	2,250
FALL	No Recharge	NA	No Recharge

New Sweden Local Conditions




New Sweden Cross-Section
SE
NW
Great Western Canal
(New Sweden)
Blkft River
DRAINS
Snake River
Modeled WT
Basalt
Sediments
?
?
?
Elevation (ft)
Distance (ft)
4700
4650
4600
4550
4500
4450
4400
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000

Summary of Recharge at New Sweden



Ultimate Fate of Recharged Water

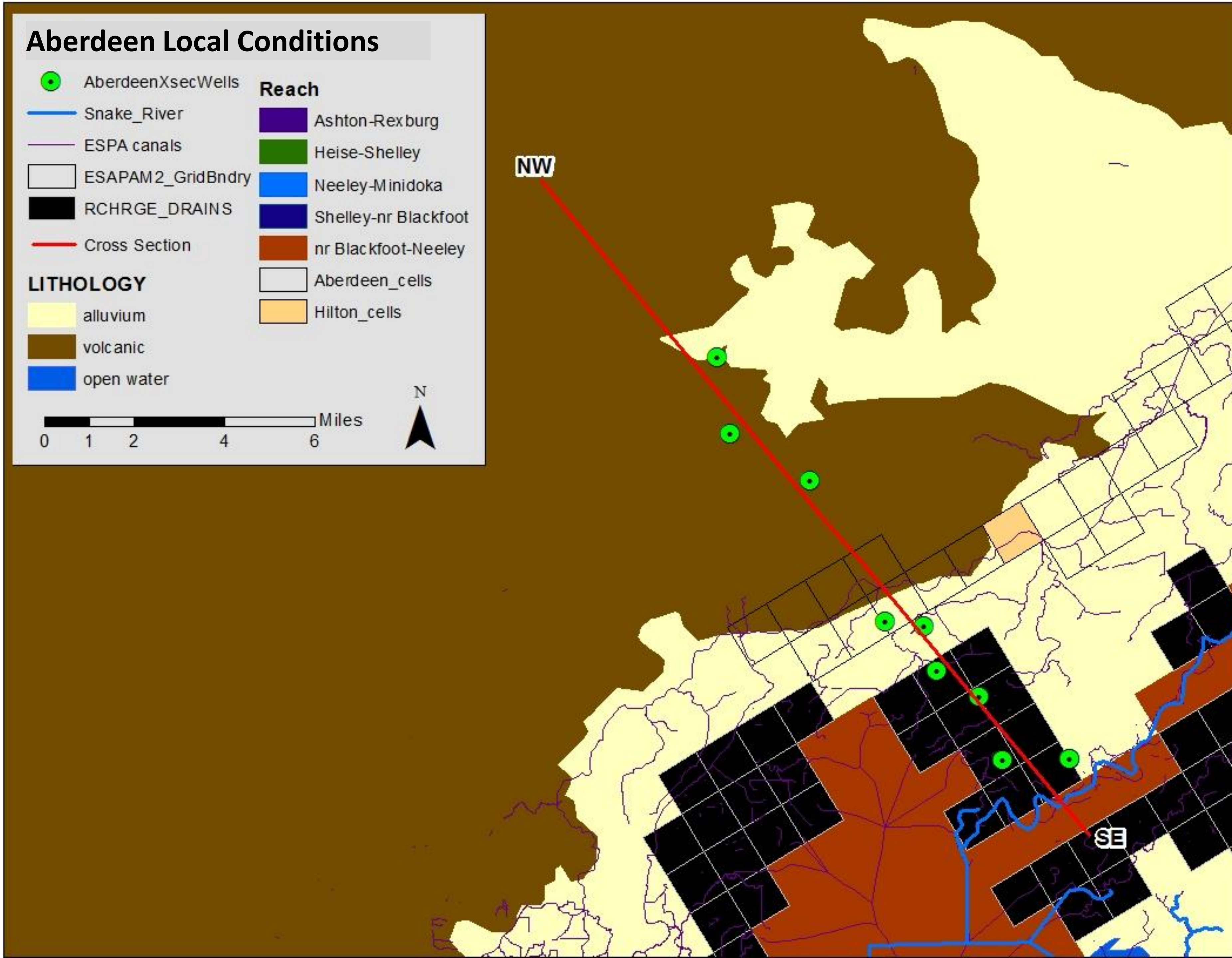
- Recharge via canal seepage and off-canal sites.
- Subsurface is primarily sediments.
- Located near an area of shallow groundwater.
- Majority of recharge water discharges: Middle Reaches.
- Recharge Limited by: **Infiltration Capacity**.

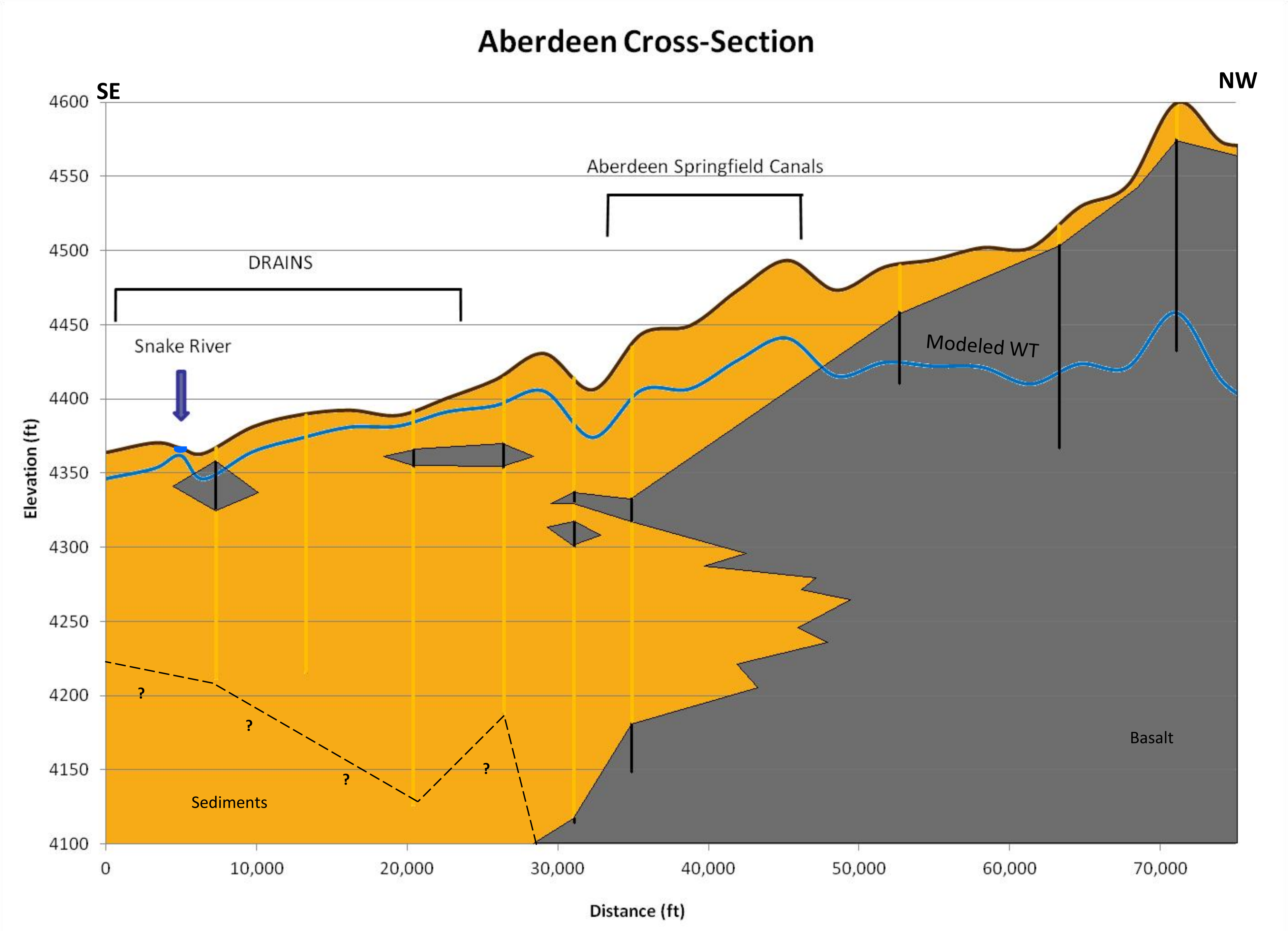
Aquifer Retention 5 years

	Rank (of 13)	Retention (%)
SPRING	9	21
FALL	9	21

Ability to Benefit Aquifer

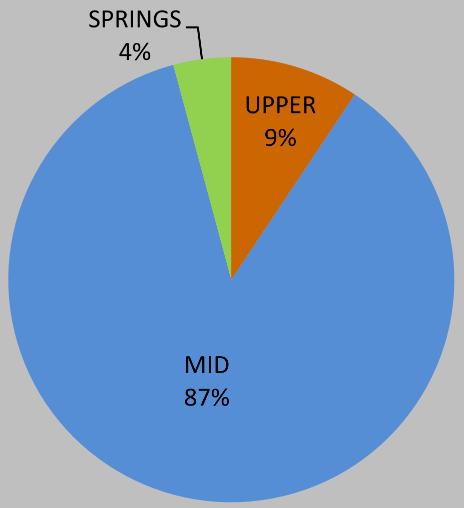
	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	1,600	300	10
FALL	1,600	300	10


Aberdeen Local Conditions
AberdeenXsecWells
Snake_River
ESPA canals
ESAPAM2_GridBndry
RCHRGE_DRAINS
Cross Section
LITHOLOGY
alluvium
volcanic
open water
Reach
Ashton-Rexburg
Heise-Shelley
Neeley-Minidoka
Shelley-nr Blackfoot
nr Blackfoot-Neeley
Aberdeen_cells
Hilton_cells
Miles
0 1 2 4 6
N
NW
SE



Aberdeen Cross-Section
SE
NW
Aberdeen Springfield Canals
DRAINS
Snake River
Modeled WT
Basalt
Sediments
?
?
?
?
Elevation (ft)
4600
4550
4500
4450
4400
4350
4300
4250
4200
4150
4100
0
10,000
20,000
30,000
40,000
50,000
60,000
70,000
Distance (ft)

Summary of Recharge at Aberdeen



Ultimate Fate of Recharged Water

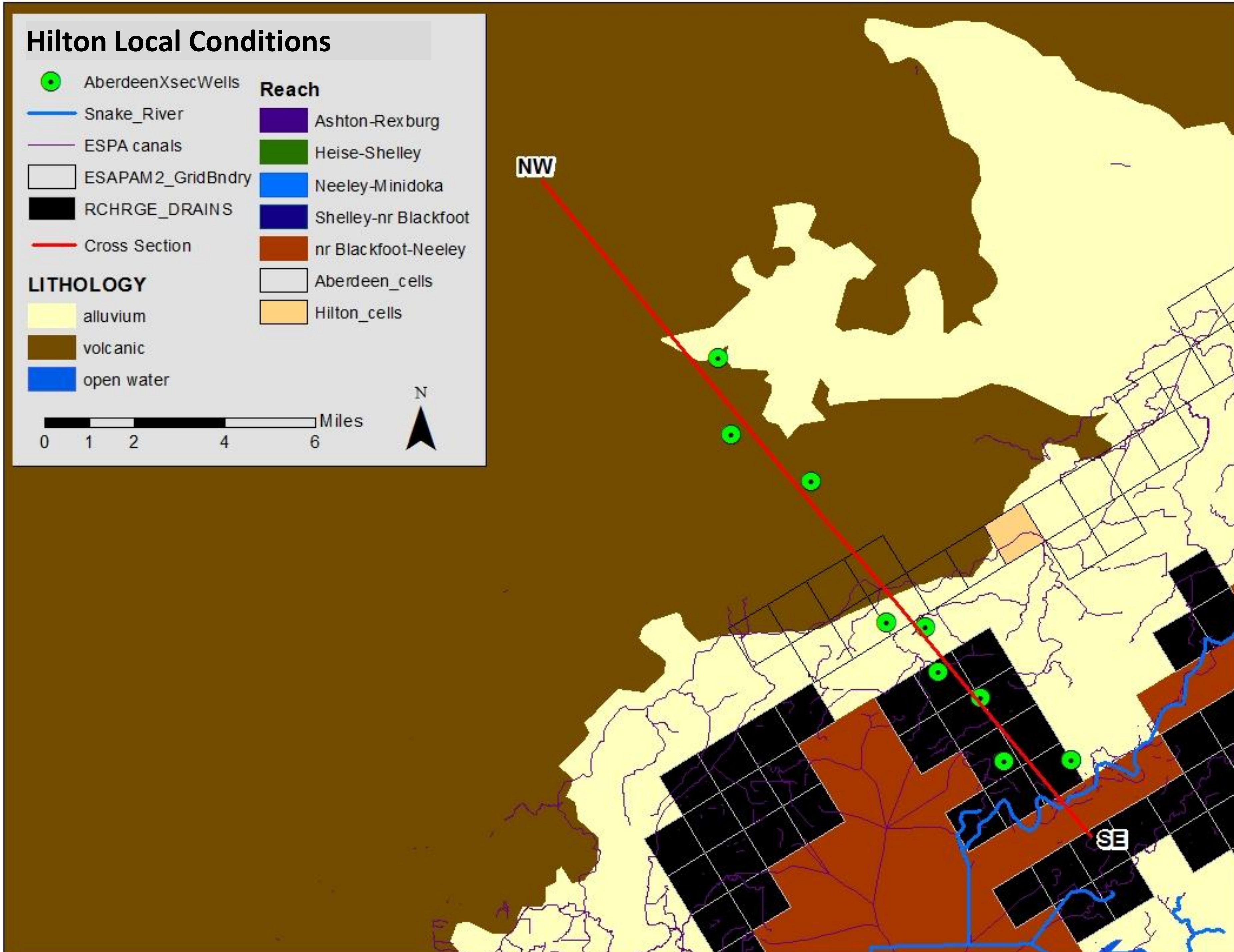
- Recharge via canal seepage.
- Subsurface is primarily sediments.
- Located in an area of shallow groundwater and groundwater discharge.
- Canal Company is planning a drainage well to remove standing water due to canal seepage.
- Majority of recharge water discharges: Middle Reaches.
- Recharge Limited by: **Shallow Groundwater**.

Aquifer Retention 5 years

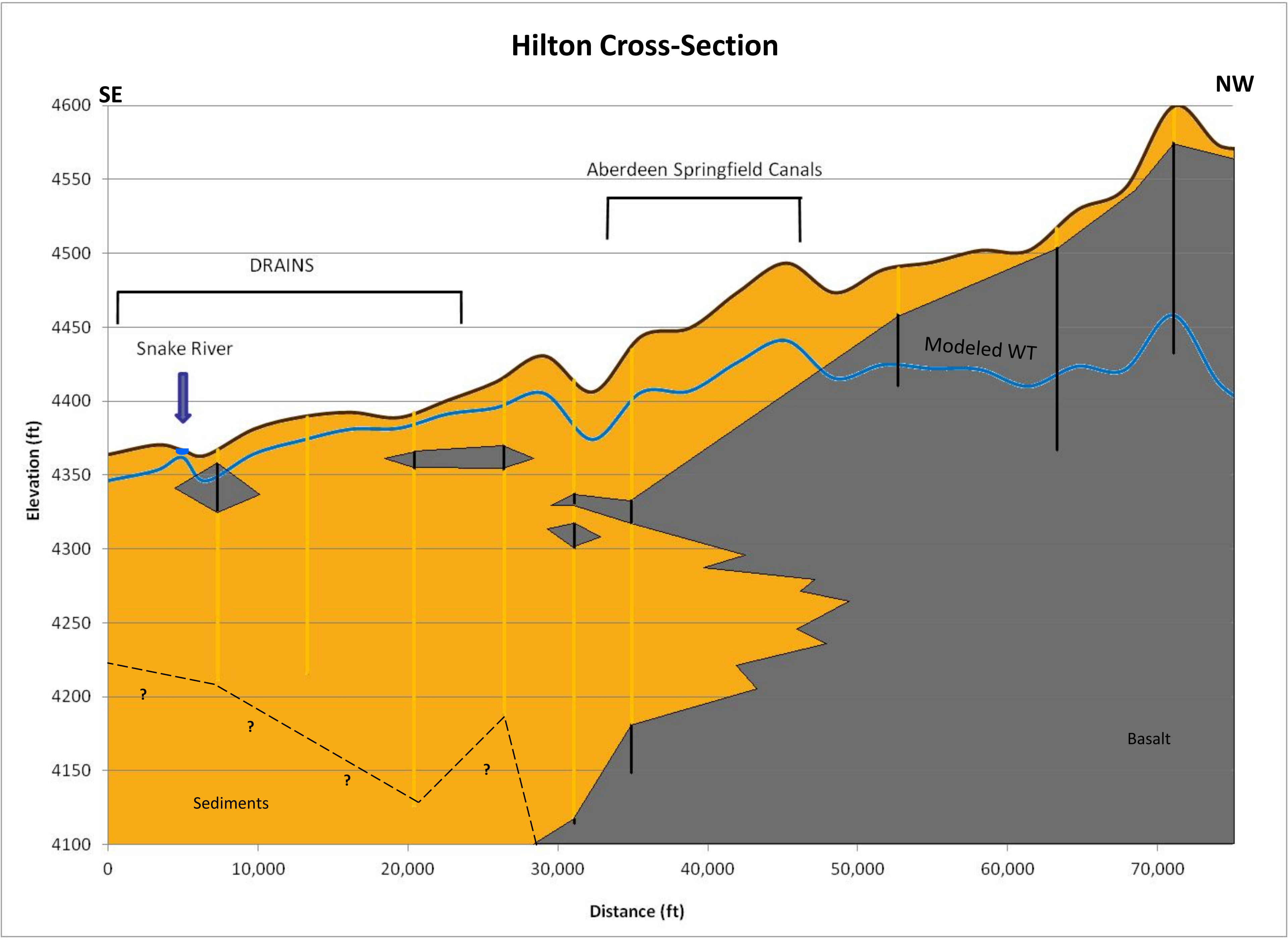
	Rank (of 13)	Retention (%)
SPRING	11	21
FALL	No Recharge	NA

Ability to Benefit Aquifer

	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	2,300	500	1
FALL	No Recharge	NA	No Recharge

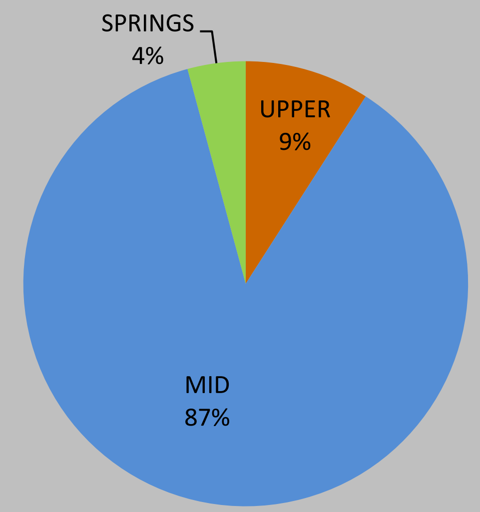


Hilton Local Conditions
AberdeenXsecWells
Snake_River
ESPA canals
ESAPAM2_GridBndry
RCHRGE_DRAINS
Cross Section
LITHOLOGY
alluvium
volcanic
open water
Reach
Ashton-Rexburg
Heise-Shelley
Neeley-Minidoka
Shelley-nr Blackfoot
nr Blackfoot-Neeley
Aberdeen_cells
Hilton_cells
0 1 2 4 6
Miles
N
NW
SE



Hilton Cross-Section
SE
NW
Aberdeen Springfield Canals
DRAINS
Snake River
Modeled WT
Basalt
Sediments
?
?
?
?
Elevation (ft)
4600
4550
4500
4450
4400
4350
4300
4250
4200
4150
4100
0
10,000
20,000
30,000
40,000
50,000
60,000
70,000
Distance (ft)

Summary of Recharge at Hilton



Ultimate Fate of Recharged Water

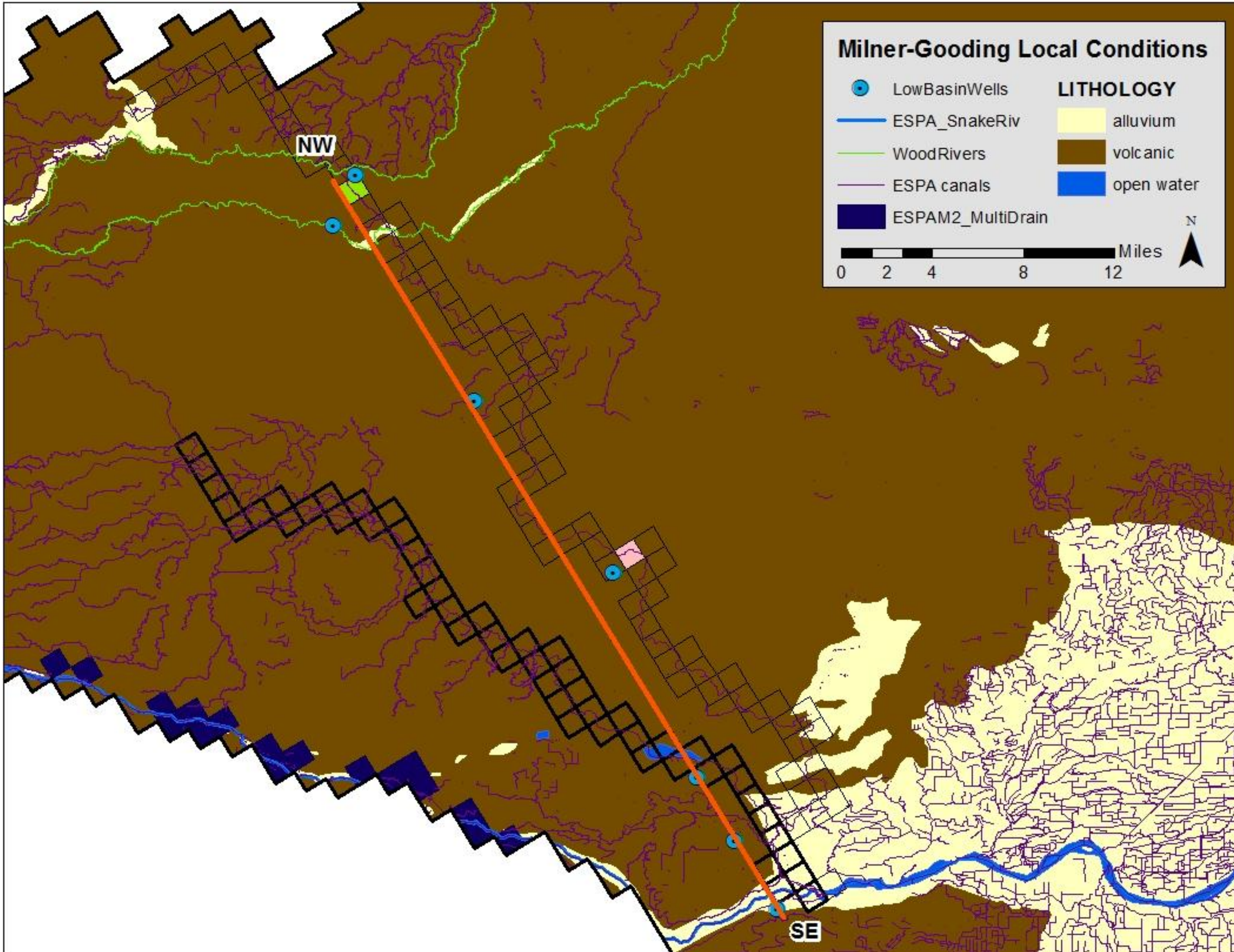
- Recharge via off-canal site.
- Subsurface is primarily sediments.
- Located in an area of shallow groundwater.
- Part of Aberdeen system, but discrete location mitigates some shallow GW limitations.
- Majority of recharge water discharges: Nr Blackfoot-Minidoka.
- Recharge Limited by: **Shallow Groundwater**.

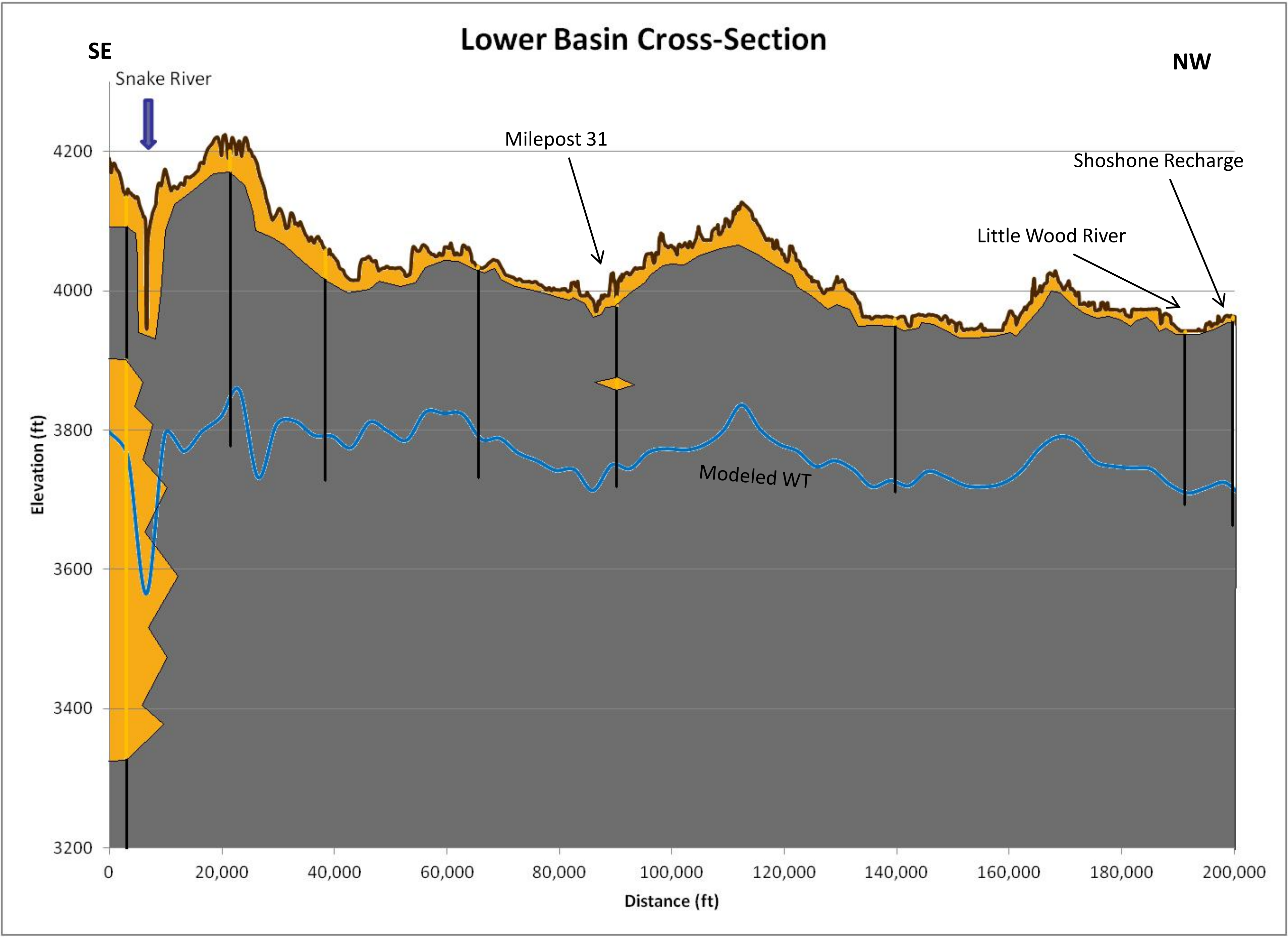
Aquifer Retention 5 years

	Rank (of 13)	Retention (%)
SPRING	10	21
FALL	10	21

Ability to Benefit Aquifer

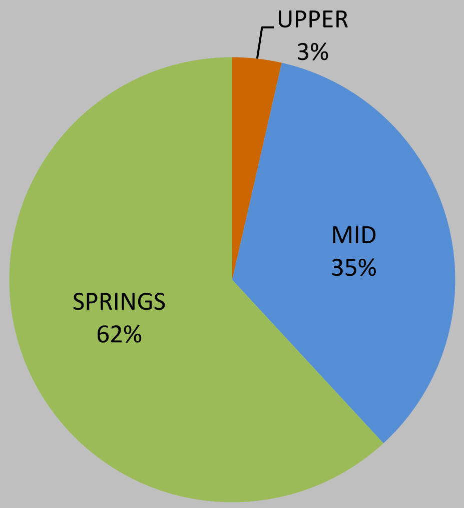
	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	3,200	700	10
FALL	2,800	600	4


Milner-Gooding Local Conditions
LowBasinWells
ESPA_SnakeRiv
WoodRivers
ESPA canals
ESPAM2_MultiDrain
LITHOLOGY
alluvium
volcanic
open water
N
Miles
0 2 4 8 12
NW
SE



Lower Basin Cross-Section
SE
NW
Snake River
Milepost 31
Shoshone Recharge
Little Wood River
Modeled WT
Elevation (ft)
Distance (ft)
4200
4000
3800
3600
3400
3200
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000
160,000
180,000
200,000

Summary of Recharge at Milner-Gooding



Ultimate Fate of Recharged Water

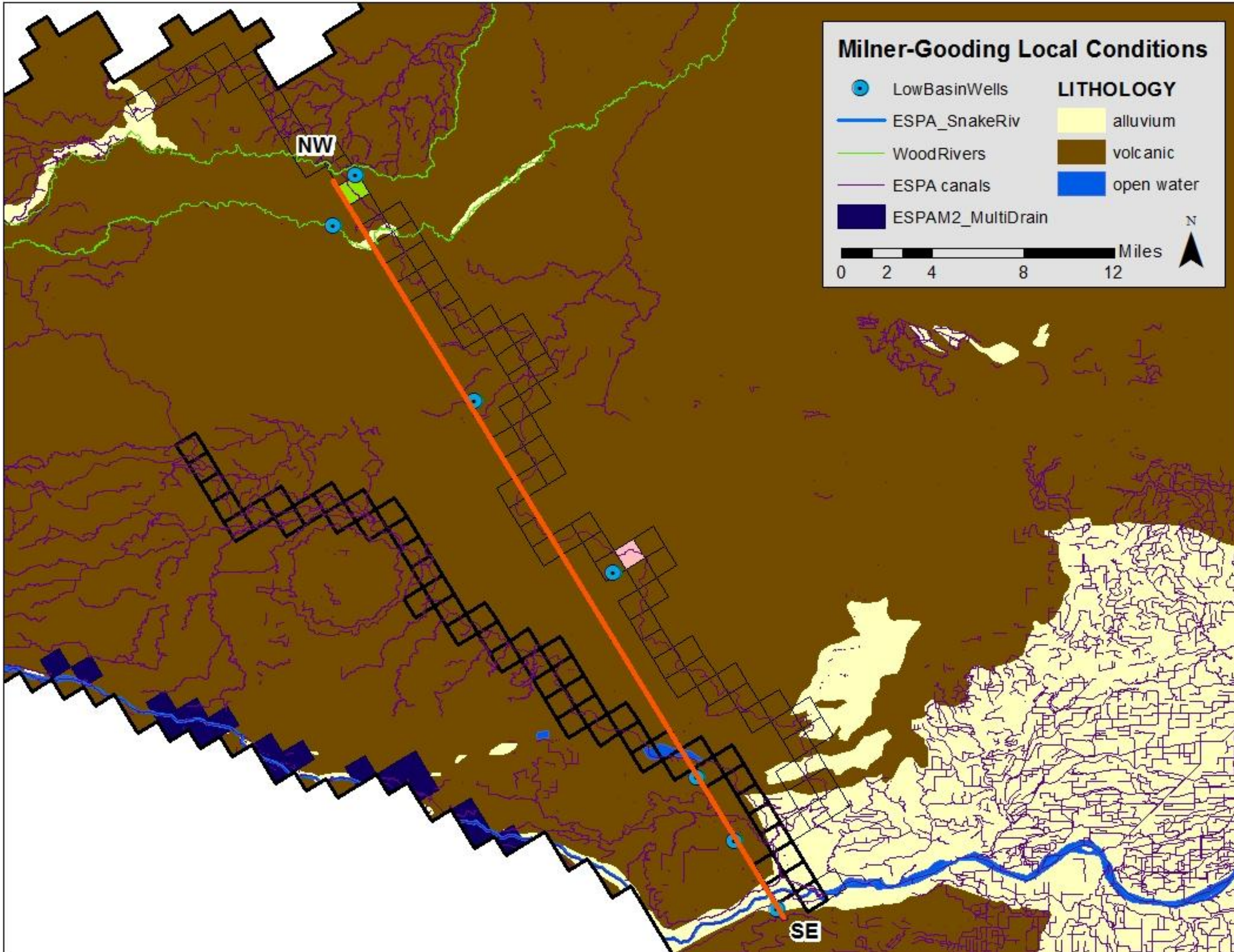
- Recharge via canal seepage and off-canal sites.
- Subsurface is primarily basalt.
- Located in an area of deep groundwater.
- Majority of recharge water discharges: Springs.
- Recharge Limited by: **Infiltration Capacity**.

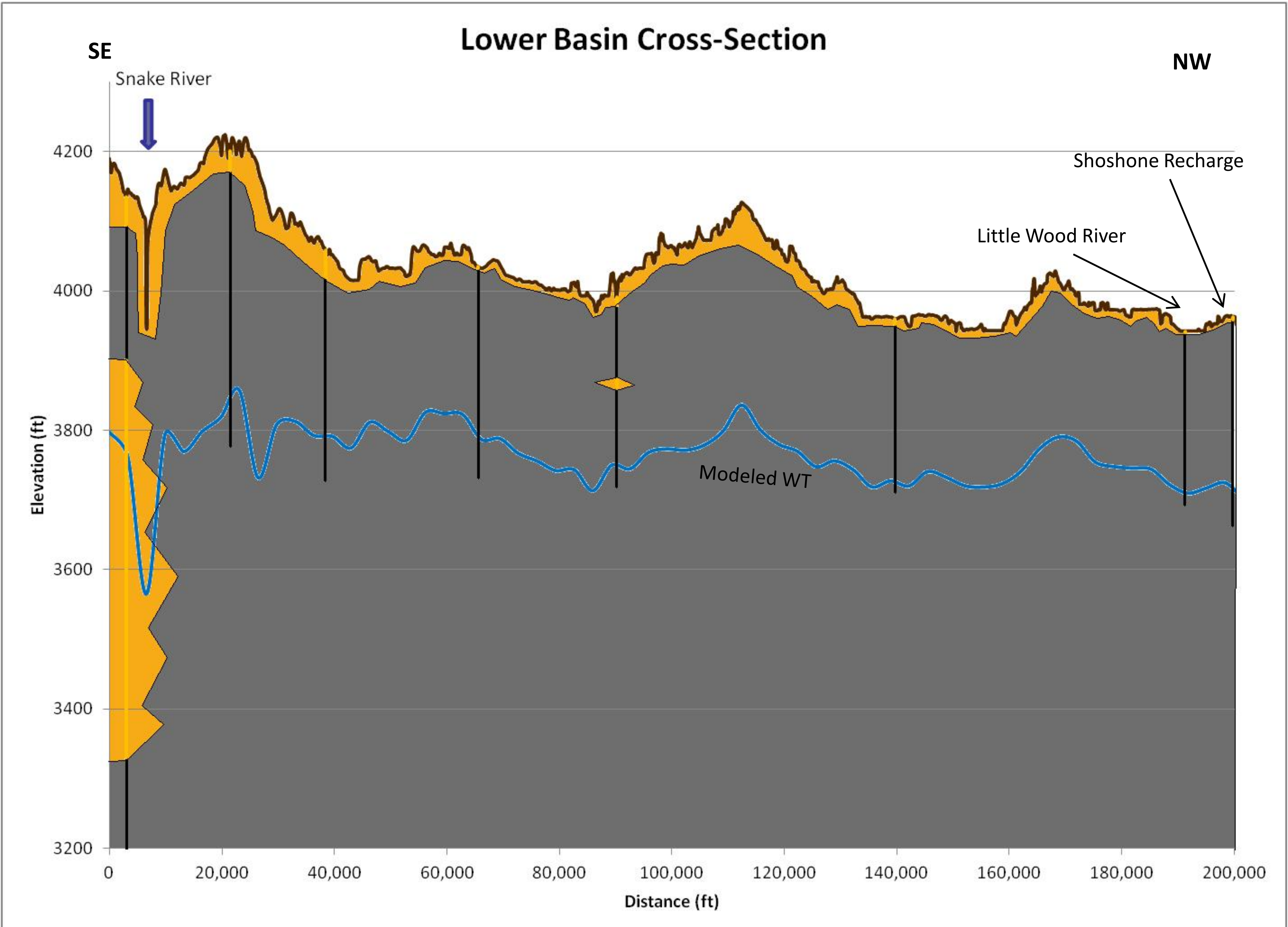
Aquifer Retention 5 years

	Rank (of 13)	Retention (%)
SPRING	6	35
FALL	6	35

Ability to Benefit Aquifer

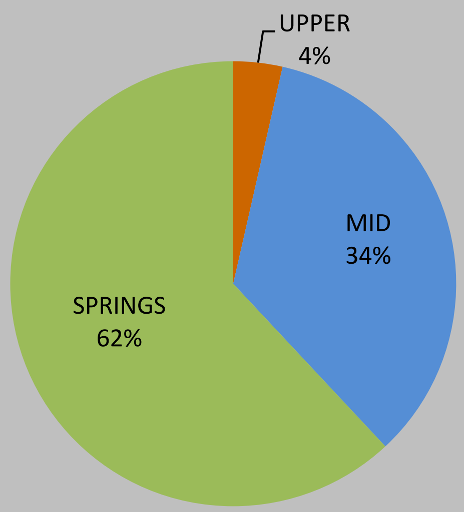
	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	8,200	2,900	10
FALL	8,200	2,900	10


Milner-Gooding Local Conditions
LowBasinWells
ESPA_SnakeRiv
WoodRivers
ESPA canals
ESPAM2_MultiDrain
LITHOLOGY
alluvium
volcanic
open water
N
Miles
0 2 4 8 12
NW
SE



Lower Basin Cross-Section
SE
NW
Snake River
Shoshone Recharge
Little Wood River
Modeled WT
Elevation (ft)
Distance (ft)
4200
4000
3800
3600
3400
3200
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000
160,000
180,000
200,000

Summary of Recharge at Shoshone



Ultimate Fate of Recharged Water

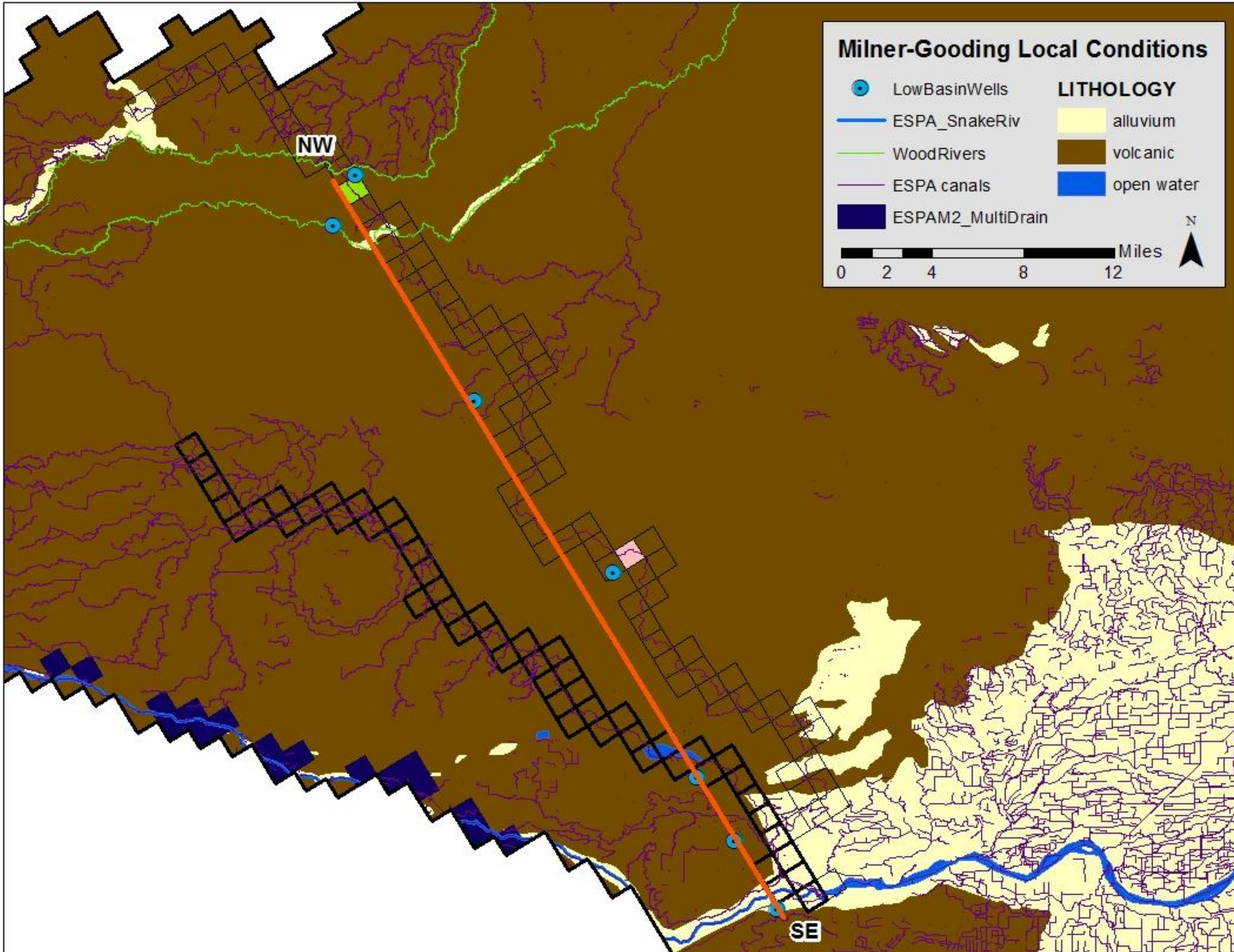
- Recharge via off-canal site.
- Subsurface is primarily basalt.
- Located in an area of deep groundwater.
- Majority of recharge water discharges: Springs.
- Recharge Limited by: **Diversion Capacity.**

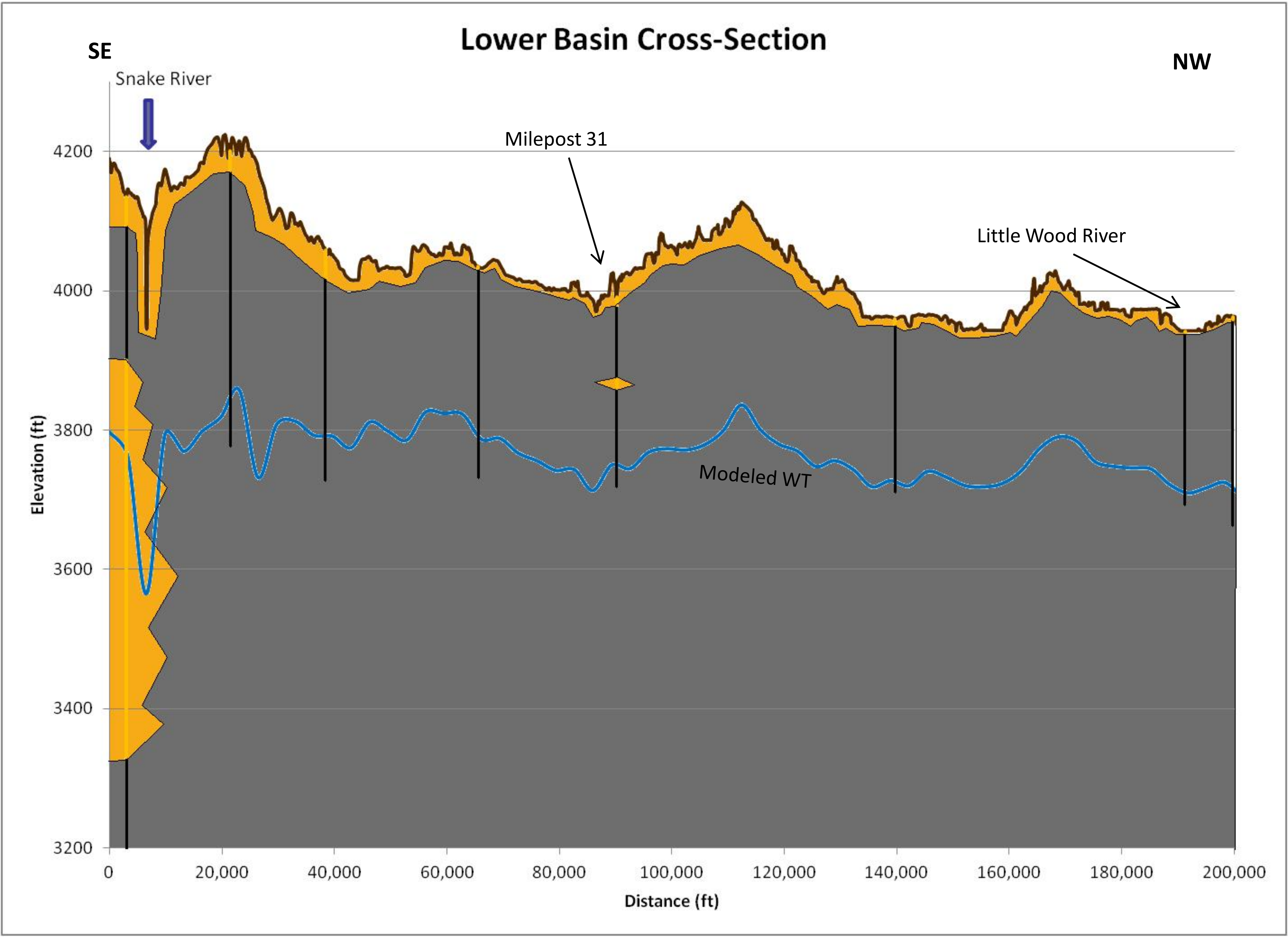
Aquifer Retention 5 years

	Rank (of 13)	Retention (%)
SPRING	7	32
FALL	7	32

Ability to Benefit Aquifer

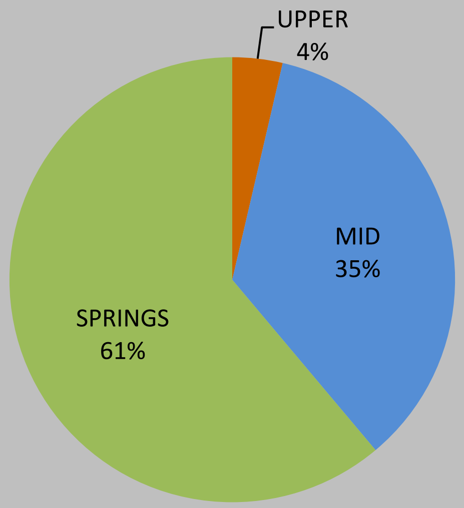
	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	19,900	6,400	10
FALL	19,900	6,400	10


Milner-Gooding Local Conditions
LowBasinWells
ESPA_SnakeRiv
WoodRivers
ESPA canals
ESPAM2_MultiDrain
LITHOLOGY
alluvium
volcanic
open water
N
Miles
0
2
4
8
12
NW
SE



Lower Basin Cross-Section
SE
NW
Snake River
Milepost 31
Little Wood River
Modeled WT
Elevation (ft)
4200
4000
3800
3600
3400
3200
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000
160,000
180,000
200,000
Distance (ft)

Summary of Recharge at Milepost 31



Ultimate Fate of Recharged Water

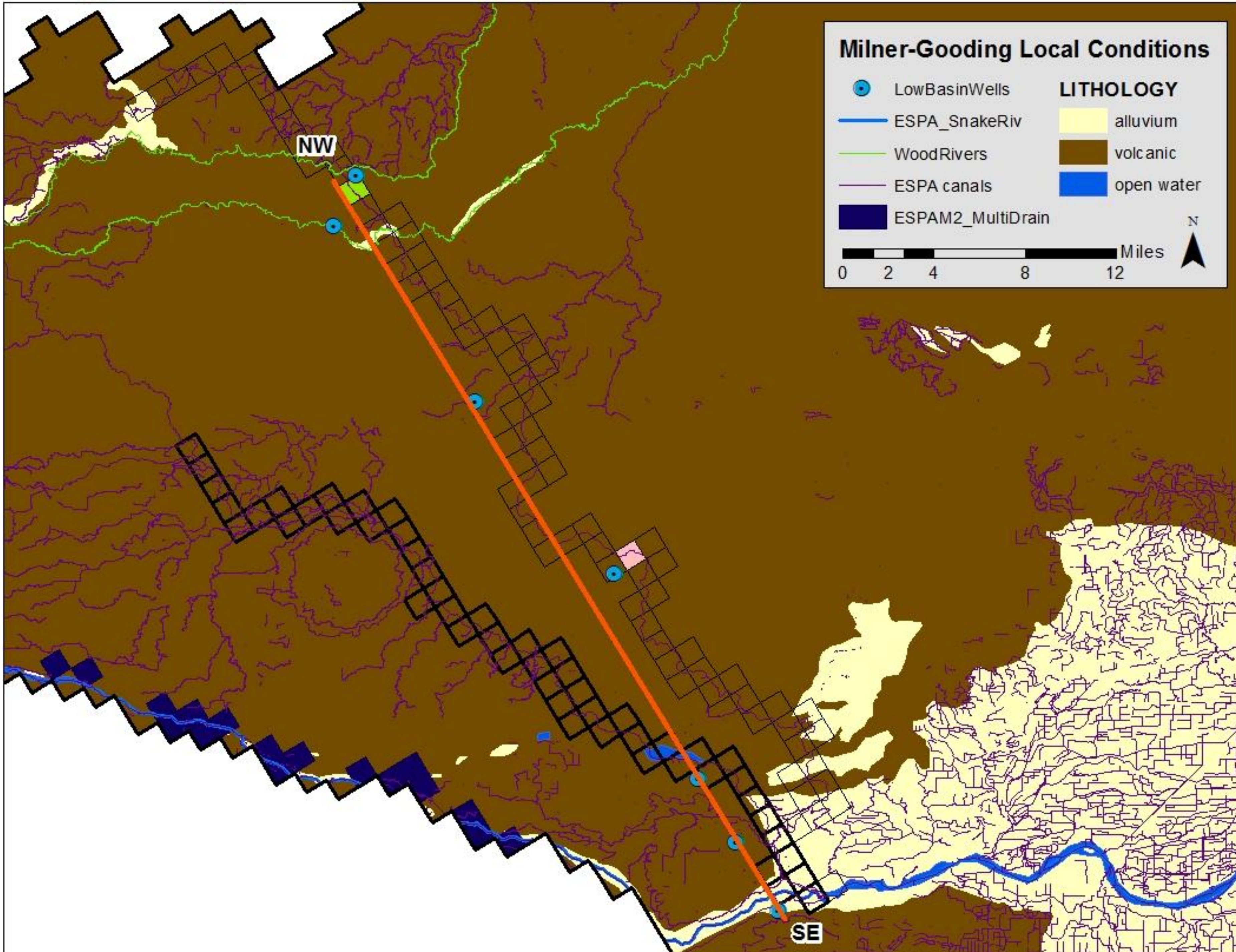
- Recharge via off-canal site.
- Subsurface is primarily basalt.
- Located in an area of deep groundwater.
- Majority of recharge water discharges: Springs.
- Recharge Limited by: **Diversion Capacity.**

Aquifer Retention 5 years

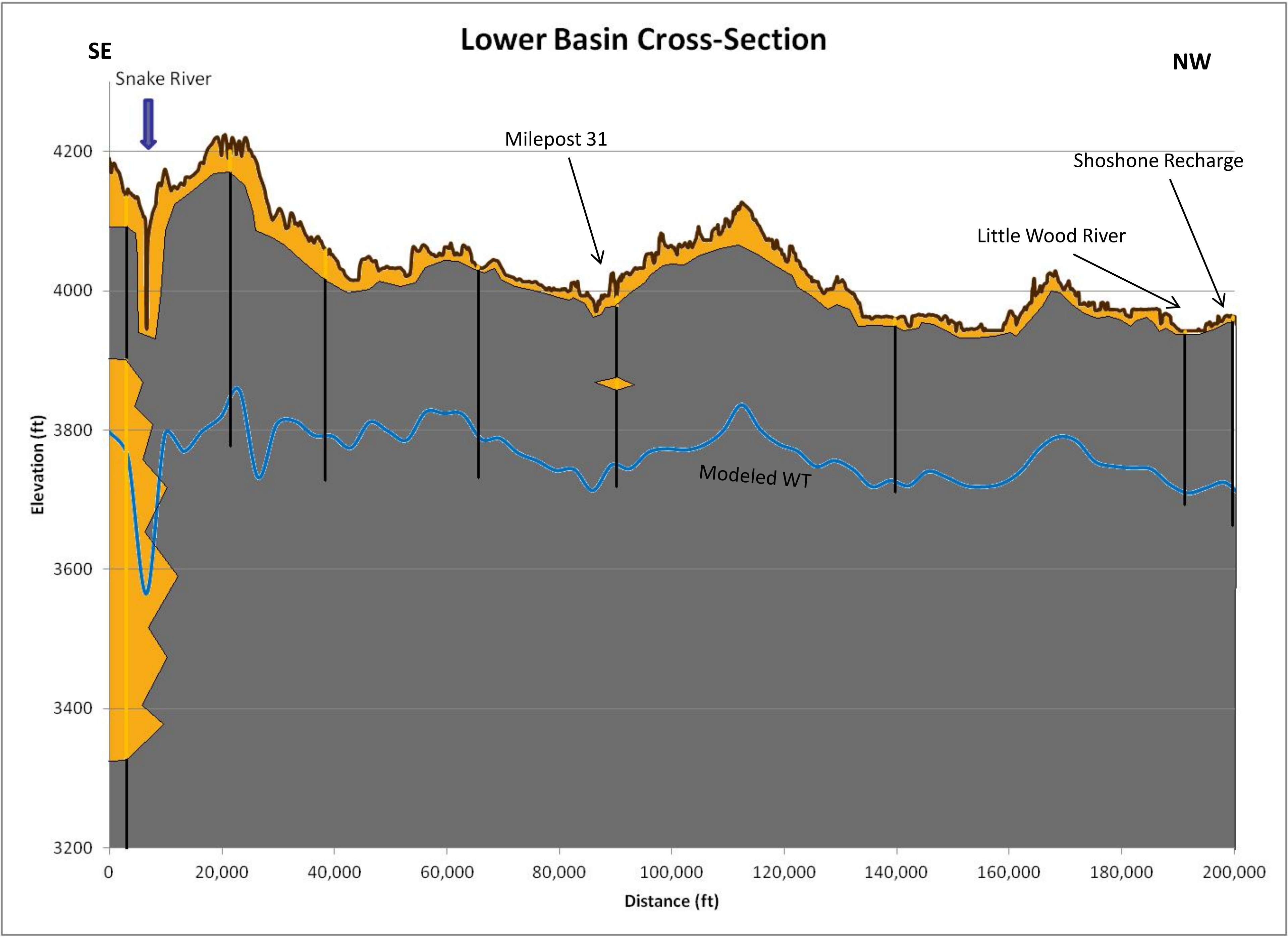
	Rank (of 13)	Retention (%)
SPRING	5	36
FALL	5	36

Ability to Benefit Aquifer

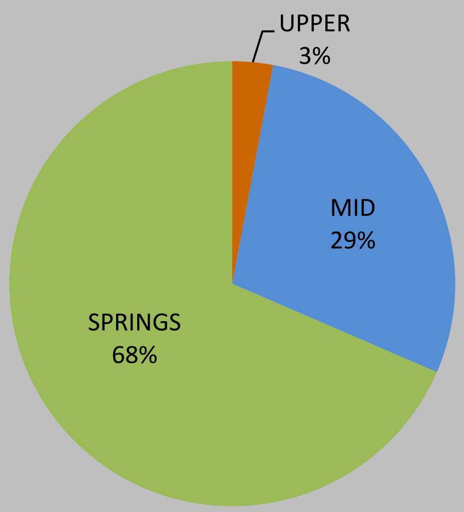
	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	18,400	6,600	10
FALL	18,400	6,600	10



Milner-Gooding Local Conditions
LowBasinWells
ESPA_SnakeRiv
WoodRivers
ESPA canals
ESPAM2_MultiDrain
LITHOLOGY
alluvium
volcanic
open water
N
Miles
0 2 4 8 12
NW
SE


Lower Basin Cross-Section
SE
NW
Snake River
Milepost 31
Shoshone Recharge
Little Wood River
Modeled WT
Elevation (ft)
Distance (ft)
4200
4000
3800
3600
3400
3200
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000
160,000
180,000
200,000

Summary of Recharge at Northside



Ultimate Fate of Recharged Water

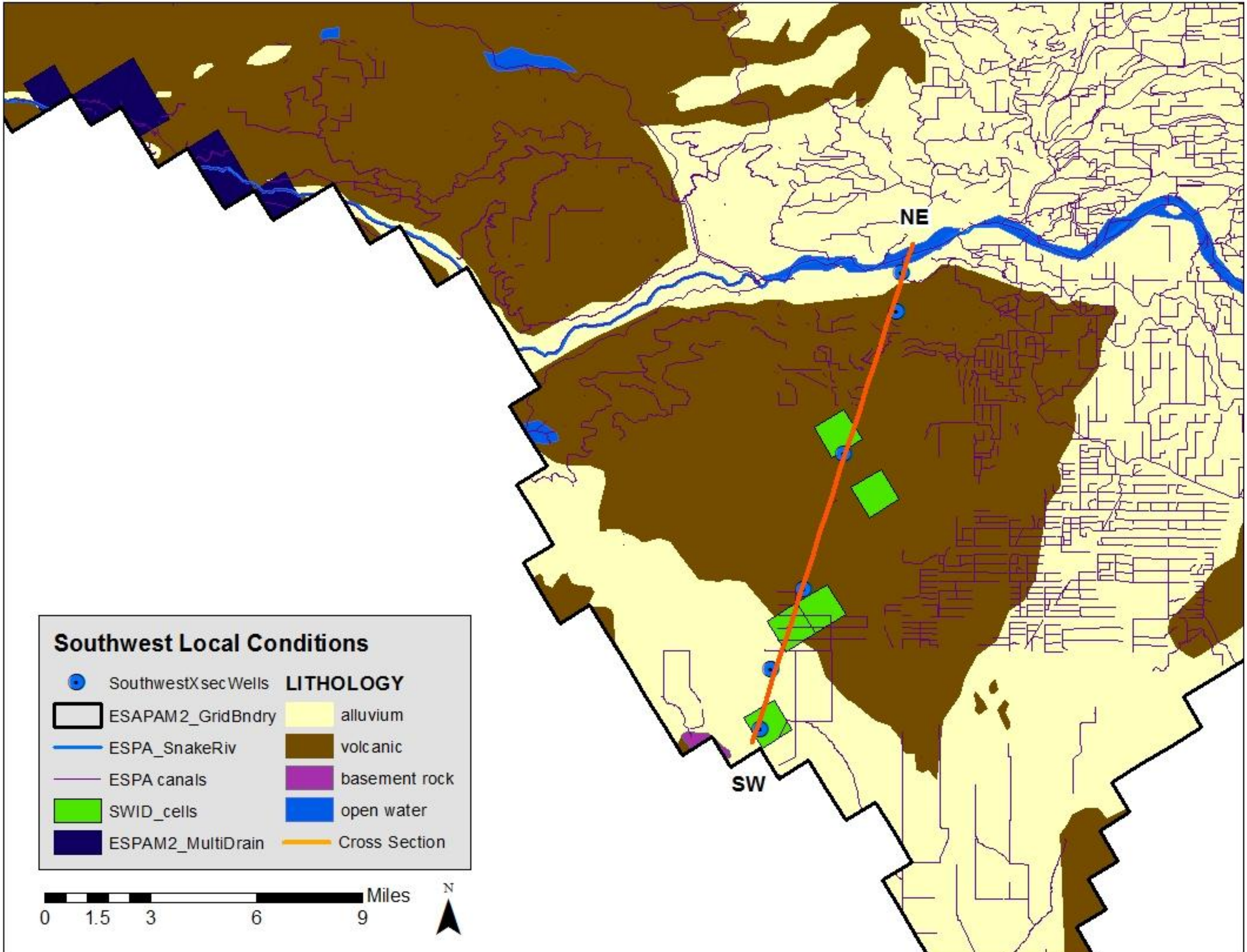
- Recharge via canal seepage and off-canal sites.
- Subsurface is primarily basalt.
- Located in an area of deep groundwater.
- Majority of recharge water discharges: Springs.
- Recharge Limited by: **Infiltration Capacity.**

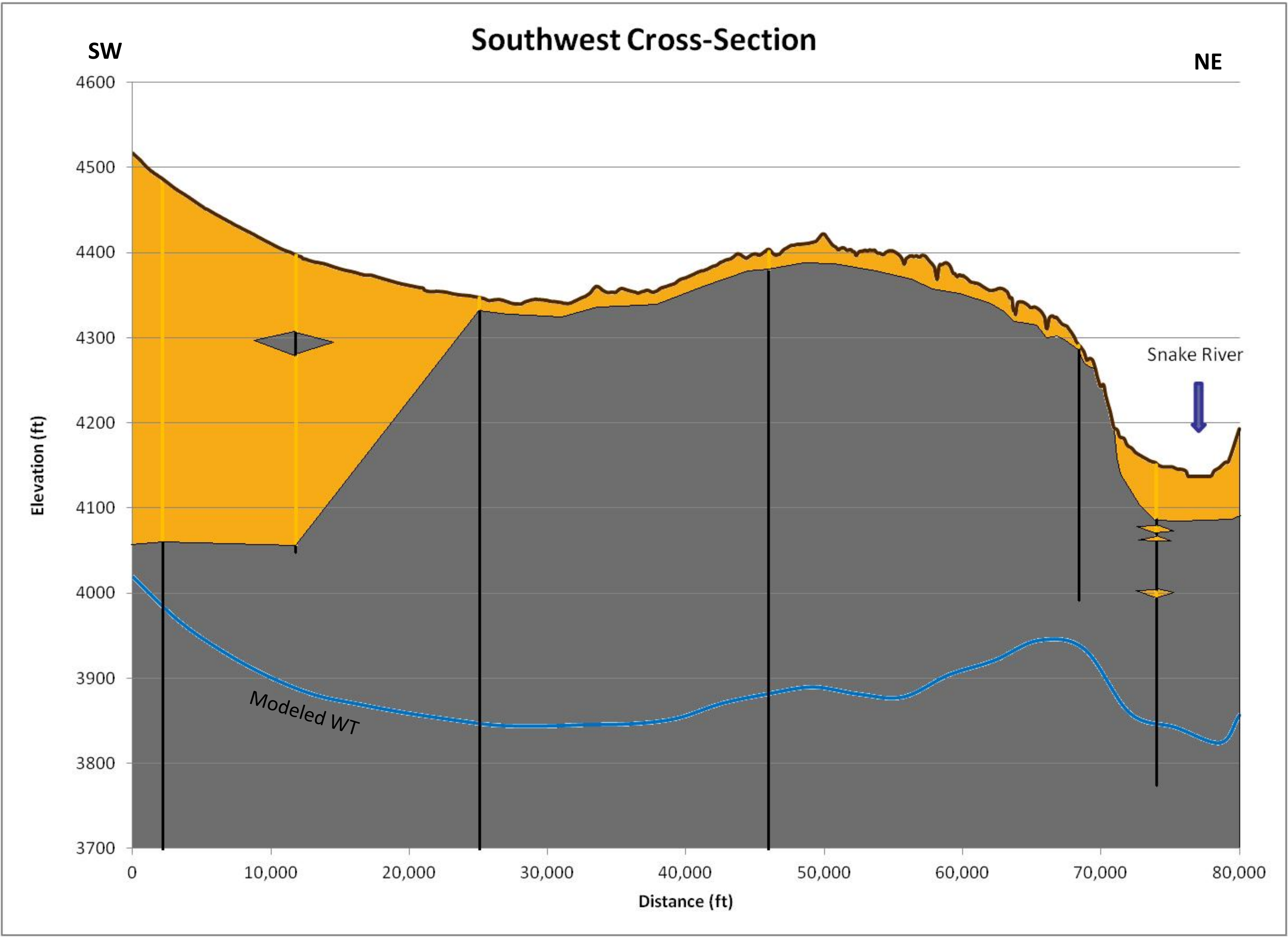
Aquifer Retention 5 years

	Rank (of 13)	Retention (%)
SPRING	8	32
FALL	8	32

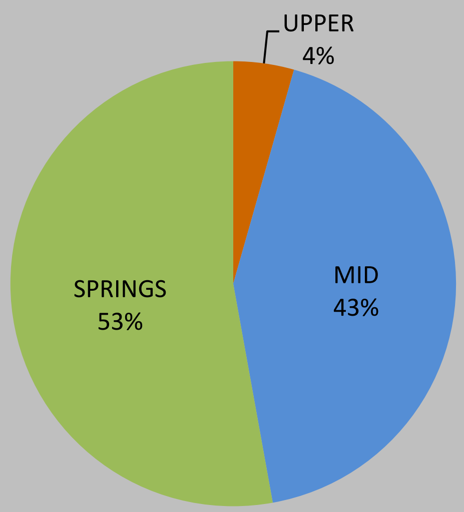
Ability to Benefit Aquifer

	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	21,200	7,000	10
FALL	21,200	7,000	10


NE
SW
Southwest Local Conditions
SouthwestXsecWells
ESAPAM2_GridBndry
ESPA_SnakeRiv
ESPA canals
SWID_cells
ESPAM2_MultiDrain
LITHOLOGY
alluvium
volcanic
basement rock
open water
Cross Section
Miles
0
1.5
3
6
9
N


Southwest Cross-Section
SW
NE
Snake River
Modeled WT
Elevation (ft)
Distance (ft)
4600
4500
4400
4300
4200
4100
4000
3900
3800
3700
0
10,000
20,000
30,000
40,000
50,000
60,000
70,000
80,000

Summary of Recharge at Southwest



Ultimate Fate of Recharged Water

- Recharge via injection at off-canal sites.
- Subsurface is primarily sediment or basalt.
- Located in an area of deep groundwater.
- Majority of recharge water discharges: Springs.
- Recharge Limited by: **Diversion Capacity.**

Aquifer Retention 5 years

	Rank (of 13)	Retention (%)
SPRING	2	54
FALL	2	54

Ability to Benefit Aquifer

	Recharge Limit (AF)	Storage at 5 yrs (AF)	Consecutive Years
SPRING	3,600	2,000	10
FALL	3,600	2,000	10